Kenya Forestry Research Institute

KEFRI KNOWLEDGE AUDIT REPORT

TOWARDS DEVELOPMENT OF A KNOWLEDGE MANAGEMENT STRATEGY

Sheila Shefo Mbiru, Vincent Oeba, Ebby Chagala-Odera, Gillian Mutua
Paul Tuwei, Dorothy Ochieng and Francis Ochung

KEFRI is ISO 14001 : 2004 Environmental Management Systems Certified

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October 2013

Layout and Design: Peter Wainaina & Sheila Shefo Mbiru

ISBN: 9966-7458-9-0

Published by:
Kenya Forestry Research Institute
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Printed by: Print Maxim

Acknowledgement

The KEFRI Board of Management and the Director KEFRI, Dr. Ben Chikamai are acknowledged for availing the resources to undertake this Knowledge Audit (KA). The Deputy Director Research and Development, Dr. Bernard Kigomo provided logistical support and guidance to ensure that the Knowledge Audit was well coordinated and completed in good time. The Deputy Director Finance and Administration, the Heads of Division for Administration, Supplies, Accounts and Audit at KEFRI Headquarters are highly acknowledged for mobilizing their respective staff to participate in the Knowledge Audit. The effort by the Centre Directors and Deputy Centre Directors of Gede, Karura, Kitui, Londiani, Maseno and Muguga Regional Research Centres and Officers-in-Charge for Kakamega, Kibwezi and Turbo Sub Centres to organize their staff was well appreciated. This immensely contributed to the success of the data collection exercise which led to production of this Knowledge Audit Report in preparation of a Knowledge Management Strategy for the institute. Special thanks go to all KEFRI staff and stakeholders who spare time from their busy schedules to fill the questionnaires and provide valuable contributions.

In addition, the Dissemination Officers namely; Damaris Munyao, Florence Mwanziu, Samson Mogire, Joyce Okumu, Samuel Wakori and George Etindi were instrumental in accomplishing the Knowledge Audit exercise through data collection from stakeholders. Their availability and willingness to complete the set targets on time was much appreciated.

Finally many people contributed to the realization of this Knowledge Audit report. Lack of mention of their names does not in any way mean their deserved contribution is not appreciated. To you all, we say thank you and God bless you.

Executive Summary

In today's global knowledge economy, knowledge is considered a key asset that needs to be effectively managed to give organizations a competitive edge. This is especially true for research organizations where new knowledge, technologies and innovations must be generated, shared, applied and managed for maximum impact. In order to successfully implement Knowledge Management (KM) activities within any organization, it is essential to have a Knowledge Management Strategy (KMS) that is aligned with the organization's overall strategy and objectives. The Kenya Forestry Research Institute (KEFRI) in recognition of the importance of knowledge as an asset has embarked on a process of developing a KMS. This process demands for a Knowledge Audit (KA) in order to review existing knowledge assets, knowledge flows and reveal the organization's KM needs, strengths, weakness, opportunities, threats and risks.

The objectives of this Knowledge Audit were to: determine status of information and knowledge access and sharing among employees and research management team in order to strengthen mechanisms of information flow; determine the level of staff capacity and competency in information and knowledge access and sharing; identify and analyze information and communication technology infrastructure for knowledge creation, capture, sharing and application among employees and stakeholders; evaluate stakeholder awareness and perception of KEFRI information and knowledge products and services and identify and analyze the effect of barriers on information and knowledge sharing among employees and stakeholders. A survey design using probability and non-probability sampling techniques were used to select 11 KEFRI Research Management team, 333 employees and 222 stakeholders. A structured questionnaire was administered to each of the respondents. Descriptive statistics, chi-square, Kruskal-Wallis H test, Mann-Whitney U test and analysis of variance were used in data analysis.

The results showed that the Research Management team agreed at a mean score of 3.62 and 3.64 that they were aware about information sharing on development, funding and implementation of government of Kenya and donor-funded projects, respectively. Similarly, they agreed at a mean score of 4.23 that they were aware about information shared on human resource procedures. Consequently, the Research Management team and employees agreed there was sufficient knowledge at KEFRI to undertake various tasks and responsibilities. This was in contrast to the methods used for passing knowledge which was moderately rated by both the Research Management team and employees. This suggested both categories of employees were not adequately exposed to capture tacit knowledge from fellow colleagues which is passed through mentorship, coaching and informal interactions among others. On analysis of staff capacity and competency in knowledge creation and sharing, the Research Management team agreed that the training and development opportunities are well linked to Strategic Plan of the Institute.

This was in contrast to employees who moderately agreed. This was further evidenced by a significant difference on long-term training between employees in research and Administration/finance Departments where the staff from the former were more trained than from the latter department. The analysis on knowledge management infrastructure showed there was no central repository in the institute for information storage, access and sharing. Most of the information was stored in paper-based documents and with other fellow colleagues in different formats. The speed of access was rated moderate

for paper-based storage compared to colleagues' workstation desktops. Results from stakeholders showed they were aware of KEFRIs provision of seeds and seedlings. These were rated as good. Other services and products were rarely identified. The stakeholders strongly agreed that the Institute's publications were easily readable, informative and of high quality. The respondents identified access to technology, poor information systems, organization policy, lack of trust, weak team work and understaffing among others as barriers to knowledge access and sharing. In order to enhance information and knowledge access and sharing within the Institute and to stakeholders, the following major recommendations were made: develop robust knowledge management system, create databases and protocols for research projects, create opputunities for formal and informal learning and sharing of knowledge, develop mentorship programmes, strengthen staff capacity on ICT applications and provide a linkage to relevant regional and international knowledge-sharing platforms among others.

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List of Abbreviations

ASK	Agricultural Society of Kenya
AMREF	African Medical Research Foundation
C.B.O	Community Based Organization
CV	Curriculum Vitae
DSS	Decision Support Systems
ERP	Enterprise Resource Planning
EMP	Employees
GFIS	Global Forest Information Service
GIS	Geographical Information System
G.o.K	Government of Kenya
FORNESSA	Forestry Research Network of Sub-Saharan Africa
FORNIS	FORNESSA Information Service
ICT	Information Communication Technology
IS	Information Sharing
ISO	International Standards Organization
IT	Information Technology
ISP	Internet Service provider
KEFRI	Kenya Forestry Research Institute
KA	Knowledge Audit
KM	Knowledge Management
KMS	Knowledge Management Strategy
MOA	Memorandum of Association
MOU	Memorandum of Understanding
MS	Microsoft
NGO	Non – Governmental Organization
RM	Research and Management team
UNDP	United Nations Development Program
WAN	Wide Area Network

Chapter One:

Introduction

1.1 Background

Knowledge is a key resource and a strategic organizational asset. Knowledge is distinct from data and information though the three terms are sometimes used interchangeably . When data, information and knowledge are arranged in a single continuum, knowledge has the highest value and the greatest relevance to decision making and actions . Data comprises facts, observations, discrete numbers, perceptions; devoid of context and meaning and can be captured, manipulated and retrieved. Information is structured, organized and processed data, with relevance and meaning, analyzed and interpreted and placed in meaningful context, highlighting trends and patterns. Knowledge is explained in the context of valued-added information, capability to act on information and capacity to act intelligently , understanding developed as one uses information and is gained through experience, reasoning, intuition and learning. Knowledge also empowers one to take action and make decisions that may benefit an individual or organization.

Knowledge can be classified into two main types; Tacit and Explicit . Tacit knowledge resides in the minds of people and is based on experience, beliefs, values and perspectives. Tacit maybe be difficult to express, formalize and is therefore not easy to capture, store, and share. Explicit knowledge is in physical form and can be captured, articulated, transferred, shared and communicated in a physical or electronic form. It can be shared formally and systematically and its existence does not depend on a person.

Explicit and tacit knowledge are distinct but can be converted from one form to another. While estimates vary, the proportion of an organizations knowledge that is in tacit form is between 80-99% . A key challenge therefore, for many organizations is capturing the tacit knowledge of employees and converting this tacit knowledge into explicit knowledge. This calls for effective systems for managing knowledge. It is in this respect that Knowledge Management (KM) has been defined as the discipline of enabling individuals, teams and entire organizations to collectively and systematically capture, store, create, share and apply knowledge to better achieve their objectives.

1.1.1 Importance of Knowledge Management

In today's knowledge economy, knowledge is considered a key asset that needs to be effectively managed to give organizations a competitive edge. This is especially true for research organizations where new knowledge, technologies and innovations must be generated, shared, applied and managed for maximum impact. Knowledge plays a crucial role in organizations and has become a strategic organizational asset, a critical source of competitive advantage and a key factor in organizational value creation.

Organizations need to institutionalize mechanisms to systematically manage both the tacit and explicit knowledge so as to create new knowledge and make better use of the knowledge already existing in the organizations. This will spur innovation, improve decision-making and to reduce

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1 Becerra Fernadez. 2004. Knowledge Management: challenges, solutions and technologies, p. 12.

2 Wong Kuan Yew & Aspinwall Elaine. 2006. Development of a knowledge management initiative and system: A case study Expert Systems with Applications 30 (2006) 633–641

3 Prof J. Kinghorn, Stellenbosch University, personal communication, Jan 2011

4 Nonaka, I. 1994. A dynamic theory of organizational knowledge creation. Organization Science, 5(1), February, 14-37

5 Dalkir K. 2005. Knowledge Management theory and practice. Mc Gill University, Elsevier Inc.

continuous reinvention of the wheel, duplication of efforts, reduce poor decision-making and avoid loss of knowledge when staff leave or retire.

If knowledge is managed well, organizations can leverage on their knowledge to make it more accessible and enhance creation of new knowledge and innovation helping to create value for organizations . Management of knowledge therefore becomes an important strategy for improving organizational competitiveness and performance. This is because proper management and leveraging of knowledge can propel an organization to become more adaptive, innovative, intelligent and sustainable .

Globally, the importance of KM in organizations continues to be recognized to be the key driver of new knowledge and ideas contributing to the innovation process and to new innovative products, services and solutions. Consequently, KM is applied today across the world, in all industry sectors, public and private organizations, humanitarian institutions and international charities . The benefits of implementing effective knowledge management strategies have been known to be highly strategic, transformational as well as operational .

1.2 Kenya's Position on Knowledge Management

Kenya intends to become a knowledge-based economy. This vision is backed by several national policy documents including; Constitution of Kenya 2010, Kenya Vision 2030, the National Information Communication Technology (ICT) Master Plan 2012-2017, and the National Broadband Strategy for Kenya 2013-2017. As a result, many government institutions are in the initial stages of developing systems for managing knowledge. This is especially important for research organizations where new knowledge, technologies and innovations are generated, shared, applied and managed for maximum impact.

1.2.1. Knowledge Management at Kenya Forestry Research Institute

Kenya Forestry Research Institute (KEFRI) is a state corporation mandated to conduct research in forestry, disseminate research findings, cooperate with other research bodies within and outside Kenya carrying out similar research and establish partnership with other organizations of higher learning in training and other matters of forestry development. KEFRI's mandate contributes to achieving Vision 2030 by developing technologies for sustainable development and utilization of forest and allied natural resources.

KEFRI has through its research programs created knowledge by developed technologies and information products that are making significant contributions to poverty alleviation, improved livelihoods, environmental conservation and forestry development in Kenya. However, experience shows that the transfer of KEFRI's technologies and information products has been a challenge as many stakeholders including farmers and extension workers are not aware of KEFRIs research outputs and technologies. In addition, some of the research outputs and technologies have not been properly documented and so cannot be widely disseminated. Other challenges include loss of knowledge when KEFRI staff leave, retire or die and their tacit knowledge has not been captured, leading to reduced productivity and duplication of effort because critical data, information and knowledge has not been properly captured and stored for easy access, use and reuse. Thus a Knowledge Management Strategy

6 Alonso Perez-Solteo et al. 2006. Knowledge Audit methodology with emphasis on core processes. European and Mediterranean Conference on Information Systems, July 6-7 2006, Costa Blanca Alicante, Spain.

7 Wong Kuan Yew & Aspinwall Elaine. 2006. Development of a knowledge management initiative and system: A case study Expert Systems with Applications 30 (2006) 633–641

(KMS) is required to guide efficient and effective management of data, information and knowledge of KEFRI products and services.

1.3 Justification

KEFRI has recognized that knowledge is a valuable resource and a strategic asset that needs to be effectively and efficiently managed. Therefore, there is need to institute mechanisms to improve management of knowledge in KEFRI. These mechanisms would enhance the capture of critical existing knowledge to increase workplace productivity and improve knowledge access and sharing to support better decision making and enhance the impact of knowledge internally and externally. Although there is some degree of management of knowledge in KEFRI and several attempts to institutionalize it, there has been lack of a systematic, coordinated and integrated approach to drive the process.

Experiences from other organizations that have embraced management of knowledge showed positive gains both in the short and long term. Two such organizations in Kenya are; World Vision Kenya and the African Medical and Research Organization (AMREF). In World Vision, effective knowledge management enhances knowledge sharing and ensures that everyone in the organization has access to the appropriate and the highest quality of information available at the time when a decision needs to be made. It also reduces the loss of intellectual capital from the organization. In AMREF, management of knowledge has resulted in enhanced collaboration among staff, improved communication within the organization, improved staff skills, better decision-making and better and consistently improved services to stakeholders . It is hoped that KEFRI can achieve similar positive gains through knowledge management. KEFRI stands to benefit greatly from instituting management of knowledge as this will strengthen the capacity to systematically perform activities involved in discovering, capturing, sharing and applying explicit and tacit knowledge so as to enhance organizational performance and productivity and in a cost effective manner, the use and impact of KEFRIs information and knowledge products and services within and outside the organization.

In order to improve management of knowledge within KEFRI, it is essential to have a Knowledge Management Strategy (KMS) that is aligned with the organization's overall strategy and objectives and guides the knowledge management practice. KEFRI in recognition of the importance of knowledge as an asset and the importance of managing this knowledge; has embarked on a process of developing a Knowledge Management Strategy. The initial step towards developing a KMS is to undertake a Knowledge Audit (KA) in order to review existing knowledge assets, knowledge flow and associated KM systems and reveal an organization's KM needs, strengths, weakness, opportunities, threats and risks . A Knowledge Audit was therefore undertaken in KEFRI to examine and evaluate knowledge needs, identify knowledge gaps and provide a basis of where KEFRI needs to focus its knowledge management efforts. The KA would form the basis of development and implementation of a KMS for KEFRI. This report provides the results of the KEFRI Knowledge Audit.

8 Young R. Why KM - the importance of knowledge management. 11th June 2012. http://www.knowledge-management-online.com/the-importance-of-knowledge-management.html

9 Young R. (2008). Back to Basics: Strategies for Identifying, Creating, Storing, Sharing and Using Knowledge. From productivity to innovation: Proceedings from the second international conference on technology and innovation for knowledge management. Tokyo: Asian Productivity Organization, p13-19.

1.4. Objectives of the KEFRI Knowledge Audit

1.4.1 Overall Objective

To determine the status of KEFRI's knowledge assets and identify gaps and opportunities towards development of a KEFRI Knowledge Management Strategy.

1.4.2 Specific Objectives

1. To determine the status of information and knowledge access and sharing among employees and research management team.
2. To determine the level of staff capacity and competence in information and knowledge access and sharing.
3. To identify and analyze Information Communication Technology (ICT) infrastructure for knowledge creation, capture, sharing and application among employees and stakeholders.
4. To evaluate stakeholder awareness and perception of KEFRI information and knowledge products and services.
5. To identify and analyze the effect of barriers and challenges of information and knowledge sharing among employees and stakeholders.

10 AMREF Knowledge Management Strategy, 2009
11 UNDP Knowledge Management Toolkit, 2007

Chapter Two:

Knowledge Audit Methodology

2.1. Study design

Survey design was used to undertake the Knowledge Audit. This is because, a survey design is used to gather data from a carefully selected sample of a population, all of whom are considered informants, and extrapolate their responses to the population. The design was adopted due to its descriptive nature that aided in learning employees and stakeholders' perception on information and knowledge creation, access, sharing and application. It also assisted in knowing the opinions of employees and stakeholders on capacity and competencies in knowledge creation, management infrastructure, information and knowledge products and services, barriers and challenges in information and knowledge flow and their mitigation measures. In addition, the versatility of the survey design used in investigation of problems also prompted the knowledge audit team to use it in the current work. Overall, the survey design helped the knowledge audit team cover KEFRI Research and sub centers using a representative sample that was generalized to the entire population.

2.2. Target population

The target population in this Knowledge Audit were; KEFRI Research and Management team, KEFRI employees and KEFRI stakeholders across all regional research centres and some sub centres. Currently KEFRI has 209 technical and 790 non-technical staff. The headquarters of KEFRI is in Nairobi and research work is cascaded at the grassroots through six Regional Research Centres, namely; Muguga, Forest Product Research Centre-Karura, Londiani, Maseno, Kitui and Gede and six sub centres strategically located to cover all ecological zones in the country.

The targeted stakeholders were; farmers, research organizations, learning institutions, Government of Kenya (GoK) Departments and Agencies, development partners and Community-Based Organizations (CBOs), Non-Governmental Organizations (NGOs), media organizations and business firms/entrepreneurs.

2.2.1. Sampling methods

Probability and non-probability sampling methods were used in selecting the sample from the target population. The probability sampling methods used were multistage sampling, stratification, cluster and simple random sampling whereas in the non-probability method, purposeful sampling was used.

2.2.2. Sampling and sample size

KEFRI staff were stratified into two; Research Management team and other employees of all cadres. The Research Management team comprised of Director, Deputy Directors (Research and Development; Finance and Administration) and National Programme Coordinators/Assistant Directors. Employees were drawn from both Research and Development and Finance and Administration departments. Within the two departments, employees were further stratified and clustered according to their designations and responsibilities. In each stratum, simple random sampling was used to select employees to participate in the Knowledge Audit survey. Purposeful sampling was also used when the target number in each stratum/cluster was not sufficient. The Research Management team was purposeful selected because of their small number and the key role they play in management of information and knowledge of the Institute. The purposeful sampling technique was also used in selection of the headquarters, six main regional research centres and three sub-centres (Turbo, Kakamega and Kibwezi).

The stakeholders were stratified according to their mandate and a list was developed where simple random sampling was used in selection of respondents from each stratum of farmers, research organizations, training institutions, GoK Departments and Agencies, donor groups, Community Based Organizations, Non-Governmental Organizations, media organizations and business firms/ entrepreneurs. Eleven research management team members, 333 employees and 222 stakeholders were sampled as shown in Table 2.1 of which 8, 320 and 200 responded respectively. Questionnaires were pro[illegible] to enhance heterogeneity of the responses. The detailed procedures of sample selection from each target population are as shown in Appendix 1.

Table 2.1. Sample size of research management team, employees and stakeholders KEFRI Headquarters and selected Regional Research Centres and sub Centres

Regional Research Centre / Sub Centre	Research Management team	Employees	Stakeholders	Total Sample size
Headquarter	11	83	0	94
Muguga		47	47	94
Karura		35	25	60
Kitui		33	40	73
Gede		30	27	57
Kibwezi		18	18	36
Londiani		46	34	80
Maseno		41	31	72
Total	**11**	**333**	**222**	**566**

2.3. The Knowledge Audit Tools

The Knowledge Audit (KA) tools was developed and consisted of three questionnaires with open and closed-ended questions to collect data from Research Management team, employees and stakeholders (Appendix2, 3 and 4). The tools were pre-tested for validity and reliability in order to reduce ambiguity of responses such that each question measured what it intends to measure.

The questionnaire for KEFRI Research Management team and employees was made up of four sections namely; Knowledge and information sharing, staff competence and knowledge, knowledge management infrastructure and barriers to knowledge flow. The Research Management team had an additional section on Research, Finance and Administration activities. In addition, general views on information access and sharing in KEFRI were sought from all staff.

The KEFRI stakeholder's questionnaire had three sections namely; perception and awareness of KEFRI products and services, information dissemination and knowledge and competency levels of KEFRI staff. Views were also sought on general perception of KEFRI products and services and knowledge sharing with stakeholders.

12 Probability sampling is a method of drawing a portion of a population so that each member of the target population has equal, known and non-zero chance of being selected into the sample. This means each member in the population was given equal opportunity to be selected to participate in the study. Non-probability sampling involves choosing items from the population without using a random sampling technique. Elements in the target population have an unknown chance of being selected into the sample. It is based on subjective judgment.

2.4. Data collection

Face-to-face interviews were conducted using the semi-structured questionnaires administered by the Knowledge Audit (KA) team. The KA team comprised of the Knowledge Management Steering Committee (KMSC) and KEFRI Dissemination Officers (Appendix 5). The KMSC administered the questionnaires to KEFRI staff after Knowledge Management sensitization seminars, which outlined importance of KM to KEFRI and the purpose of the audit. The respondents were given step-by-step explanation on each question to assist them understand and correctly fill in the questionnaire. For KEFRI Stakeholders, face-to-face interviews were conducted by Dissemination Officers who guided the respondents through the questionnaire and gave assistance where necessary.

2.4.1. Types of data measurements

Tables 2.2 and 2.3 provides a summary of areas assessed, number of variables measured, type of measure and associated attributes of assessment for Research Management team/employees and stakeholders, respectively. Employees were not assessed on research, finance and administration activities.

Table 2.2. Areas assessed, number of variables measured and associated attributes on Research Management team and employees

Areas assessed	Number of variables measured	Type of measure	Associated attributes
Research, finance and administration activities	31	Ordinal	All variables were closed ended and measured on a Likert scale of 5 as follows: 5=strongly agree; 4=Agree; 3=Moderately agree; 2=Disagree; 1=Strongly disagree
Knowledge and information sharing	31	Ordinal	28 variables on closed ended were measured on a Likert scale of 5 as follows: 5=strongly agree; 4=Agree; 3=Moderately agree; 2=Disagree; 1=Strongly disagree.
		Nominal	2 variables were closed ended and nominally measured on different categories. 1 variable was open ended and measured nominally on different categories
Staff competency and knowledge	12	Nominal	2 variables were open ended whose measurement were nominally coded.
			5 variables were closed ended and nominally measured on different categories
		Ordinal	5 variables were closed ended and measured on a Likert scale of 5 as follows: 5=strongly agree; 4=Agree; 3=Moderately agree; 2=Disagree; 1=Strongly disagree
Knowledge management infrastructure	9	Nominal	7 variables were closed ended and nominally measured on different categories 2 variables were open ended and nominally coded

Barriers to knowledge flow	5	Nominal	2 variables were closed ended and nominally measured 3 variables were open ended and coded on nominal measure
Background information	7	Nominal	4 variables were open ended and coded on nominal measure 1 variable was closed ended and nominally measured
		Scale	2 variables were open ended and measured on scale/interval

Note: Ordinal measure is characterized by ordered responses and nominal measure is characterized by non-ordered responses and scale is an interval or continuous measure

Table 2.3. Areas assessed, number of variables measured and associated attributes on stakeholders

Areas assessed	**Number of variables measured**	**Type of measure**	**Associated attributes**
Perception and awareness of KEFRI products	8	Nominal	2 variables were closed ended and nominally measured on different categories. 5 variables were open ended and measured nominally on different categories.
		Scale	1 variable was open ended and measured on a scale/interval
Information and dissemination	12	Ordinal	9 variables were closed ended and measured on a Likert scale of 5 as follows: 5=strongly agree; 4=Agree; 3=Moderately agree; 2=Disagree; 1=Strongly disagree; 0=not applicable.
		Nominal	1 variable was open-ended whose measurement were nominally coded.
Knowledge and competency levels	13	Ordinal	12 variables were closed ended and measured on a Likert scale of 4 as follows: 4=knowledgeable and competent; 3=Fairly knowledgeable and competent; 2=Not knowledgeable and competent; 1=Not interacted
		Nominal	1 variable was open ended and nominally coded
Barriers to knowledge flow	2	Nominal	1 variable was closed ended and nominally measured 1 variable were open ended and coded on nominal measure
Background information	5	Nominal	1 variable was closed ended and nominally measured 4 variables were open ended and captured as string (not for analysis)

Note: Ordinal measure is characterized by ordered responses and nominal measure is characterized by non-ordered responses and scale is an interval or continuous measure

2.5. Data analysis

Descriptive statistics (frequencies, percentages, mean scores and cross tabulations) were used to determine the pattern of data from various variables. Chi-square test was used to detect associations and relationship of variables on information and knowledge creation, access, sharing and retrieval. Statements on Likert scale measurement were analyzed on a five-point scale whose average mean score was computed to obtain the overall measure on level of agreement. Non-parametric test statistics were used. In particular, Kruksall-Wallis H test was used to compare differences among stakeholders and frequency of interaction while Mann-Whitney U was used test for comparing departments and skills employees acquired during trainings and sharing among others. Analysis of variance was used to compare differences among stakeholders on the number of years interacted with KEFRI. Data was coded, entered and analyzed using Statistical Package for Social Scientists (SPSS v.17). Data outputs from SPSS were further manipulated using Ms-Excel 2007. Results were presented in tables and graphs.

Chapter Three:

Knowledge Audit Results and Discussions

3.0. Introduction

This chapter provides results and discussion on the Knowledge Audit data. It is divided into seven sections, namely:

i) Status of information and knowledge sharing,
ii) Staff capacity in knowledge creation and sharing,
iii) Knowledge management infrastructure,
iv) Dissemination of KEFRI knowledge information products and services
v) Stakeholder's perception of KEFRI products and services
vi) Stakeholders perception of KEFRIs staff competency on Knowledge creation and sharing
vii) Barriers and challenges to information flow

3.1. Information and Knowledge Sharing

This section covered status of information access and sharing, status of knowledge access and sharing, systems of information and knowledge sharing.

3.1.1. Status of information access and sharing

The type of data sought was categorized into information sharing among Research Management team on the following: KEFRI Strategic Plan, research projects funded by the Government of Kenya (GoK), research projects funded by donor/development partners, accounts and budgets, human resource, ISO 14001: 2004, type of information and how it is communicated. Similarly, the type of information among employees and how it was communicated was also sought.

3.1.1.2. Information sharing on KEFRI Strategic Plan and ISO 14001:2004

The results showed that 57% of the Research Management team agreed that they were aware of KEFRI Strategic Plan compared to 14% who moderately agreed (Figure 3.1). Overall rating resulted to a mean score of 4.1 corresponding to 83% on level of agreement. This implied that the Research Management team mainly agreed that they were aware of KEFRI Strategic Plan. The expectation was that this team who are part of the top management that oversees the implementation of KEFRI Strategic Plan need to have strongly agreed on the awareness of the Strategic Plan since this is the document they refer to when implementing the various activities within the period of the plan. This reinforces the fact that there is a need to improve awareness on the content of the Strategic Plan as this forms the core of implementing organizational activities. Strategic planning is an important responsibility of the top management of an organization and it is therefore imperative that members of top management are not only aware of the Strategic Plan but are also involved in the development process . In addition, the organizations Strategic Plan should guide development of the Knowledge Management Strategy as effective and efficient management of knowledge helps the organization achieve its goals and objectives . There needs to be close interconnection between the strategic planning and knowledge management process development.

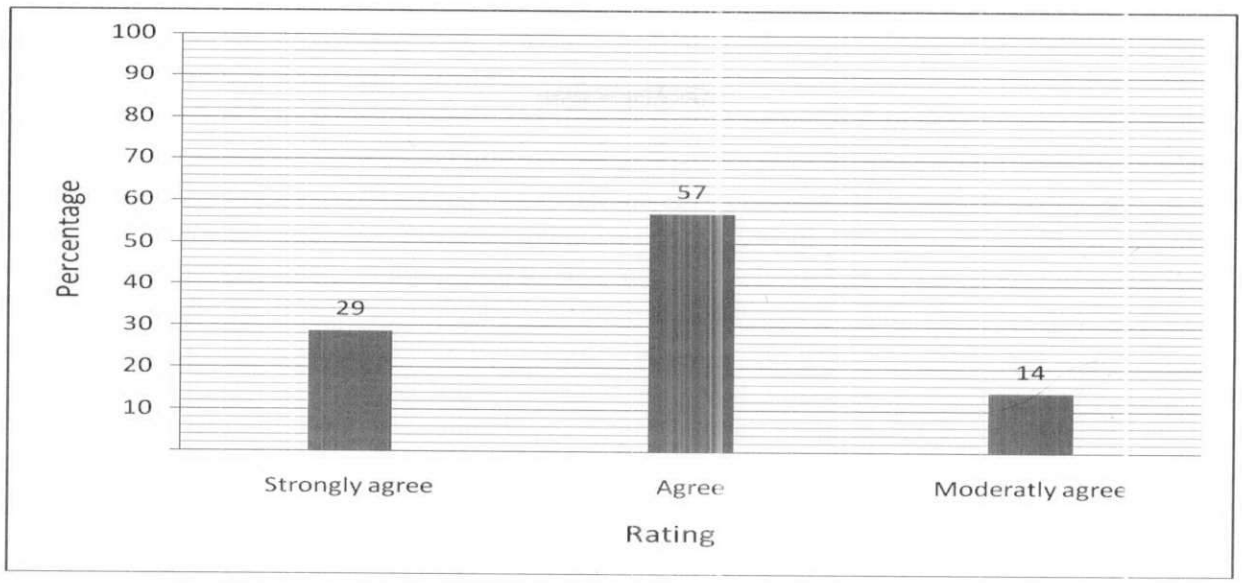

Figure 3.1. Rating on awareness of KEFRI Strategic Plan by Research Management team

The KA survey revealed that 43% of the Research Management team strongly agreed they were aware of ISO 14001:2004 procedures (Figure3.2). This resulted to overall mean score of 4.3 corresponding to 86% implying that the Research Management team agreed that they were aware of ISO 14001:2004 procedures. This may suggest that the Research Managementment team were well sensitized about ISO 14001:2004. Hence they are likely to comply with specifications and procedures of Environmental Management Systems. There is need to continue maintaining and improving the management systems to increase environmental performance and maintain the ISO status. This will require all staff and especially the Research Management team to be able to access and share relevant and updated information on the ISO process.

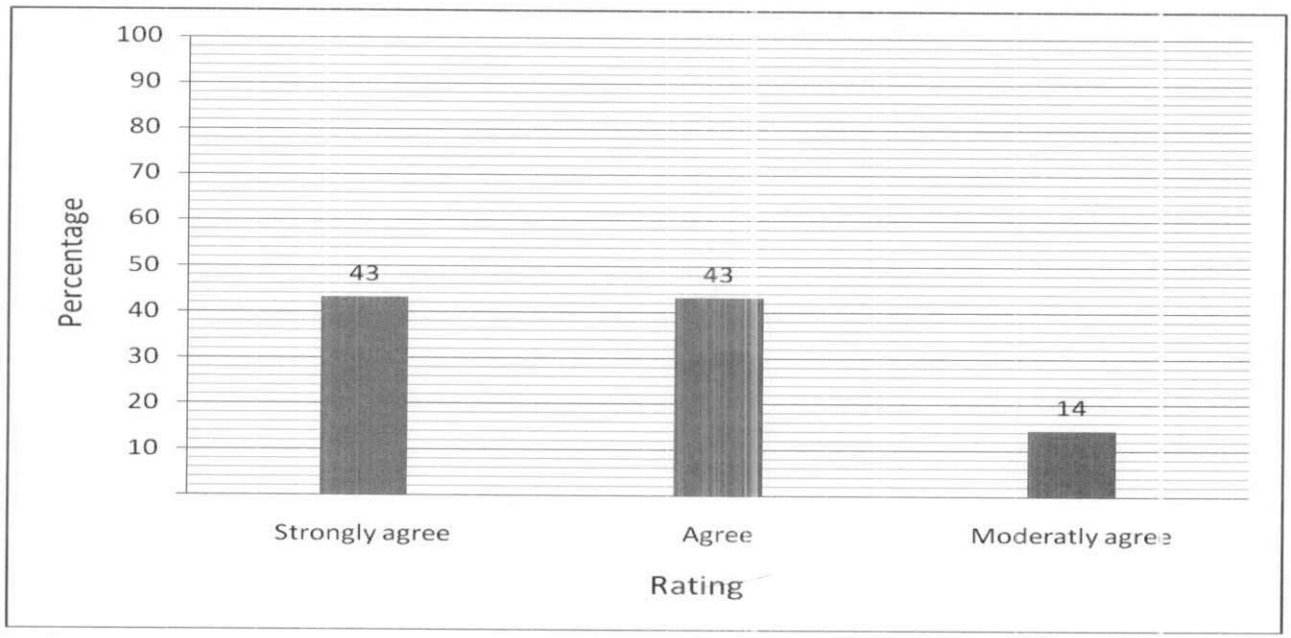

Figure 3.2. Rating on awareness of ISO 14001:2004 by Research and Management team

12 Resnick H. Organizational Strategic Planning Processes. 21st June 2012. http://www.worksystems.com/services/strategic_planning.html

13 Brun C. (2005). ABC of Knowledge Management. NHS National Library for Health: Knowledge Management Specialist Library.

3.1.1.3. Information sharing on development, implementation and funding of GoK projects

The audit revealed that the Research Management team agreed that they were aware of research concepts developed in all programmes. Awareness of research concepts developed in all programmes had the highest mean score of 4.28. This was followed by communicating the amount of GoK and internally generated funds to all departments, programmes, divisions and centres at a mean score of 4.00. The other areas of information sharing the Research Management team agreed they were aware of included; approved projects in all programmes, updates on the accomplishment of the projects undertaken in each year, collaborators of each project in all programmes, project development history in all programmes and updates on the implementation schedule of all projects (Table 3.1). These results showed some degree of well coordinated information sharing among the top management. However, it was expected that since the Research Management team members were few, majority if not all should have strongly agreed on the awareness and updates of information sharing on various components assessed in this knowledge audit. This showed some gaps in information sharing that need to be addressed through an efficient and effective knowledge management system at the Institute.

The following were the overall areas the Research Management team moderately agreed they were aware or updated of: awareness of the total number of projects in all programmes, awareness on the current status of each project in all programmes, updates on the progress of the projects undertaken in various programmes periodically, updates on the current trends of funding in each project and updates on the implementation problems of projects in each programme (Table 3.1). This again demonstrated a gap in information sharing on these important areas especially among the Research Management team who oversee the implementation of all projects within the strategic plan.

Overall, the comparative analysis on the level of awareness and updates of the various projects on development and implementation suggests that there is need to design of good system of information sharing among the Research Management team. This was evidenced by overall rating on moderately agree for adequate mechanisms of sharing information in all programmes across research centres with a mean score of 3.57 (Figure 3.3). This implied that there were gaps in the effective and efficient mechanisms in place for information sharing.

Table 3.1. Areas of information sharing on development, implementation and funding projects by Research Management team

Areas of information sharing	Rating, mean score and overall percentage					
	Strongly Agree	Agree	Moderately agree	Disagree	Mean score	Overall %
Aware of total number of projects in all programmes	17	33	17	33	3.33	67
Aware of the current status of each project in all programmes	17	17	33	33	3.17	63
Updated on the progress of the projects undertaken in various programmes periodically	33	17	17	33	3.50	70
Aware of the project development history in all programmes	29	14		57	3.71	74
Updated on the current trends of funding in each project	14	43	14	29	3.43	69
Aware of the collaborators of each project in all programmes	29	29	29	14	3.71	74
Aware of research concepts developed in all programmes	57	14	29		4.28	86
Aware of the approved projects in all programmes	43	14	29	14	3.86	77
Updated on the implementation problems of projects in each programme	14	29	14	43	3.14	63
Updated on the accomplishment of the projects undertaken in each year	29	43		29	3.71	74
Amount of GOK and internally generated funds are communicated to all departments, programmes, divisions, centres	29	43	29		4.00	80
Updated on the implementation schedule of all projects	29		71		3.57	71

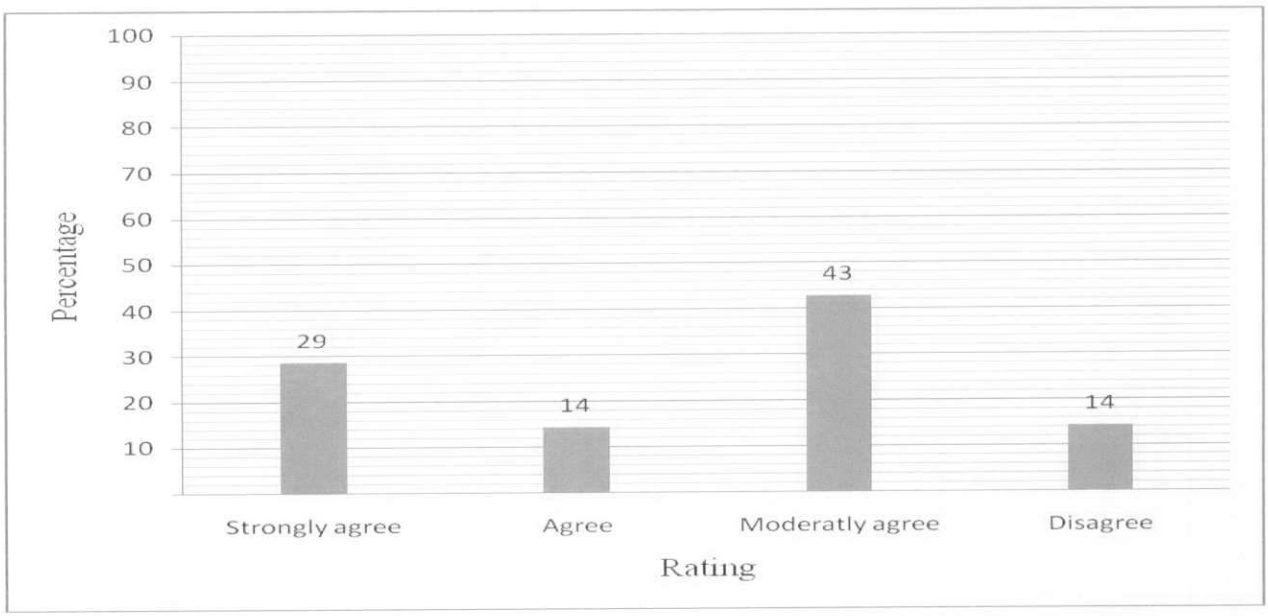

Figure 3.3. Rating on adequate mechanisms of information sharing in all programmes across and research centres by Research Management team

3.1.1.4. Information sharing on development, funding and implementation of donor projects

The results showed that the Research Management team agreed that they received updates on all donor funded projects, their objectives and outputs. They also agreed that the amount of donor funds approved were communicated to all programmes and centres. However, they moderately agreed that they were updated on the status of upcoming projects from collaborators and development partners (Table 3.2). This continued to demonstrate existing gaps in mechanisms of information access and sharing among the key Research Management team.

Table 3.2. Areas of information sharing on development, funding and implementation of donor projects by Research Management team

Areas of information sharing	Rating, mean score and overall percentage					
	Strongly agree	Agree	Moderately agree	Disagree	Mean score	Overall %
Updated on all donor funded projects	29	14	57		3.71	74
Updated on the objectives and outputs of each donor-funded projects	43	29	14	14	4.0	80
Amount of donor funds approved are communicated to all programmes and centres	29	14	57		3.71	74
Updated on the status of upcoming projects from collaborators and development partners	29		29	43	3.14	63

In addition, 71% and 29% of the Research Management team agreed and moderately agreed, respectively, on information on all Memorandum of Understanding (MOUs) and Memorandum of Agreement (MOAs) signed by KEFRI and other development partners, institutions and organizations. Due to the position of officers at management level, it was expected that all should have strongly agreed on information sharing on partnership and networks if effective mechanisms of information were in place.

3.1.1.5. Information sharing on budget, accounts and supplies procedures

It was evident from the analysis that, the Research Management team agreed on their level of awareness on KEFRI budgeting procedures, budget components, accounts manual, accounts procedures, supplies manual and supplies procedures (Table 3.3). However, the levels of strongly agree and agree varied widely on budgeting procedures and components.

Table 3.3. Areas of information sharing on budget, accounts and supplies by Research Management team

Areas of information sharing	Rating, mean score and overall percentage				
	Strongly agree	Agree	Moderately agree	Mean score	Overall %
Aware of KEFRI budgeting procedures	29	43	29	4.00	80
Aware of KEFRI budget components	29	57	14	4.14	83
Aware of accounts manual	43	43	14	4.29	86
Aware of accounts procedures	43	43	14	4.29	86
Aware of supplies manual	43	43	14	4.29	86
Aware of supplies procedures	43	57	-	4.43	89

3.1.1.6. Information sharing on human resource manual and procedures

The Research Management team was aware of the Scheme of Service at a mean score of 4.29, Human Resource Manual (4.0) and Human Resource Procedures (4.43) Figure 3.4. The scores implied that information flow among Executive Committee was well coordinated in regard to human resource procedures. People are a key component in management of organizational knowledge and consequently Human Resource Management (HRM) in organizations should be structured to develop HRM policies and practices that promote information and knowledge flow to meet organizational strategic objectives.

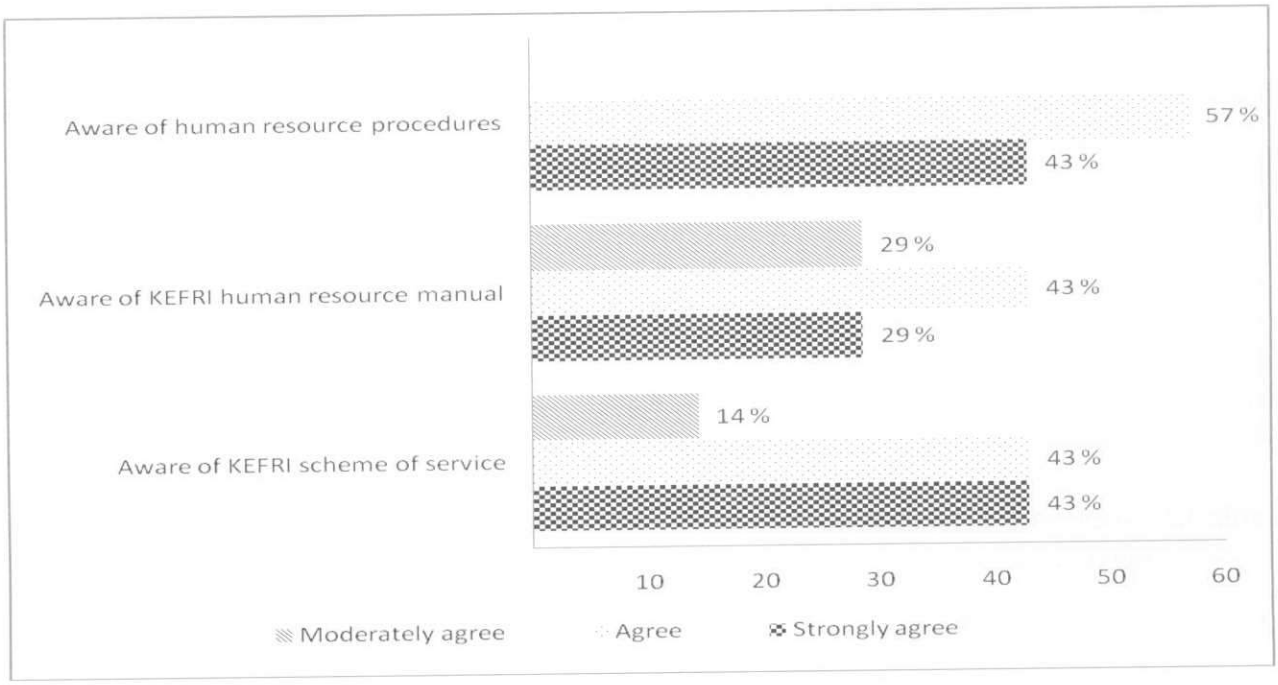

Figure 3.4. Rating on awareness of human resource manual and procedures by Research Management team

3.1.1.7. Type of information and frequency of sharing among research management team and employees

The type of information shared in a formal way among employees were mainly administrative and dissemination of research findings (Table 3.4). The main mode of communication used were letters, memos, phone calls and internet on administrative operations, existence of meetings, appointments, minutes of meetings, instructions on tasks mandate, awareness of seminars, open and field days, reporting and publications as well as dissemination of research findings (Table 3.5).

Table 3.4. Type of information shared in a formal way among employees

Type of information shared	Frequency (n)	Percentage
Administrative operations	24	8
Existence of meetings, appointments and minutes of meetings	117	38
Instructions on tasks mandate	19	6
Awareness of seminars/field days/trainings/open days	48	16
Reporting and publication	22	7
Information regarding staff records	19	6
Dissemination of research findings	21	7
Available products and services in KEFRI/supplier payments and transaction	8	3
Technical knowledge / activities	17	6
Health education	3	1
Customer feedback	4	1
Supplier database	1	0.3
Progress on orders	1	0.3
Tender specification	1	0.3
Total	305	100

Table 3.5. Type of information shared in a formal way and how communicated among employees

Type of information	Percentage on modes of communication											Total
	Internet	Letter	Memos	Phone calls	Mobile call	Databases	Emails	Publications	Workshop /field days	News papers	Word of mouth	
Administrative operations	21	13	21	21	17	0	4	4	0	0	0	24
Existence of meetings & appointments/minutes of meetings	16	20	49	4	8	0	0	0	0	0	3	116
Instructions on tasks mandate	0	29	29	29	6	0	0	0	0	0	6	17
Awareness of seminars/field days/trainings/open days	6	31	42	10	6	4	0	0	0	0	0	48
Reporting and publication	28	33	11	17	0	6	0	0	0	0	6	18
Information regarding staff records	0	50	31	13	0	0	6	0	0	0	0	16
Dissemination of research findings	25	10	30	0	10	0	0	5	0	10	10	20
Available products and services in KEFRI/supplier payments and transaction	0	0	17	17	33	17	0	0	0	0	17	6
Technical knowledge / /activities	33	7	7	7	33	0	0	0	7	0	7	15
Health education	0	50	50	0	0	0	0	0	0	0	0	2
Customer feedback	25	25	50	0	0	0	0	0	0	0	0	4
Supplier database	0	0	0	0	0	100	0	0	0	0	0	1
Progress on orders	0	0	0	100	0	0	0	0	0	0	0	1
Tender specification	0	0	0	0	0	0	100	0	0	0	0	1

The main types of information shared formally among Research Management team were on work plans of research projects/activities, technical reports and publications (Table 3.6)

Table 3.6. Type of information shared in a formal way among Research Management team

Type of information	Frequency (n)	Percentage
Work plan activities/technical/administration/discussions	5	20
Meetings	4	16
Report writing/research documents	7	28
Publications	6	24
Financial control system	1	4
Social	1	4
internet search	1	4
Total	**25**	**100**

The main mode of communication used for publications, report writing and research documents were internet and memos (Table 3.7). The preference to use the internet may be attributed to the growing importance of information in electronic format and the need for faster access. There is need to provide fast and reliable access to the internet to facilitate information access and sharing.

Table 3.7. Type of information shared in a formal way and how communicated among Research Management team

Type of information	Percentage on modes of communication								Total (n)
	Internet	Letter	Memos	Phone calls	Mobile call	Databases	Word of mouth	Library	
Work plan activities/technical /admin/ discussions	20	20	0	20	20	0	20	0	5
Meetings	0	33	0	33	0	0	0	33	3
Report writing/research documents	60	0	20	0	0	20	0	0	5
Publications	80	0	20	0	0	0	0	0	5
Social	0	0	0	100	0	0	0	0	1
Internet search	100	0	0	0	0	0	0	0	1

The information was often shared in a formal way at a rate of 73% among employees as compared to very often among Research Management team at 60% (Table 3.8).

Table 3.8. Frequency of information sharing in formal way among employees and Research Management team

Frequency of information sharing	Employees		Research Management	
	Percentage	Frequency (n)	Percentage	Frequency (n)
Very often	16	43	60	3
Often	73	190	40	2
Not at all	11	28		
Total	**100**	**261**	**100**	**5**

3.1.2. Status of knowledge access and sharing

The Research Management team and employees essentially agreed there is sufficient knowledge at KEFRI to do their tasks, they find specific knowledge to do their work, the specific knowledge they need resides with experts rather than a specific location, satisfied with available knowledge with their core team, their core team were very supportive of knowledge generation, their designated departments facilitates knowledge storage and retrieval and their designated departments encourages and facilitates knowledge sharing/transfer (Table 3.9). However, on whether employees are rewarded for their contribution to the development of organizational knowledge, the Research Management team agreed as compared to employees who moderately agreed. Overall, there were variations on rating among areas of knowledge access and sharing between Research Management team and employees. For instance, on access of specific knowledge Research Management team need in their work, the rating was at a scale of agree (4.00), while that of employees was at 3.64. The failure to have an overall rating of strongly agree on knowledge access and sharing, points out a need to have a robust knowledge management system to support capture, access, sharing and application of both tacit and explicit knowledge in KEFRI.

Table 3.9. Areas of knowledge access and sharing among research management team and employees

Areas of knowledge access and sharing	Strongly agree		Agree		Moderately agree		Disag ree	Strongly disagree	Mean score		Overall %	
	RM	EMP	RM	EMP	RM	EMP	EMP	EMP	RM	EMP	RM	EMP
There is sufficient knowledge at KEFRI to do my tasks	29	29	43	40	29	26	5	1	4.00	3.91	80	78
Find specific knowledge I need in my work place	29	22	43	36	29	30	10	3	4.00	3.64	80	72
Specific knowledge I need resides with experts rather than a specific location	29	25	29	29	29	23	18	5	3.71	3.52	74	70
Satisfied with available knowledge with my core team	14	24	14	36	71	26	11	4	3.43	3.64	68	72
Core team are very supportive of knowledge generation		27	57	42	43	22	5	4	3.57	3.83	72	76
Designated departments facilitates knowledge storage and retrieval	14	18	29	33	57	30	13	6	3.57	3.45	72	69
Designated departments encourages and facilitates knowledge transfer/sharing	14	22	71	34		22	15	6	4.00	3.50	80	70
KEFRI employees are rewarded for their contribution to the development of organizational knowledge	17	10	50	20	33	24	28	19	3.83	2.73	76	54

EMP – Employees **RM – Research Management team**

Overall the Research Management team moderately agreed that knowledge was passed among themselves through coaching, formal training and colloquia. Similarly, employees moderately agreed knowledge was passed through coaching, mentoring, informal interaction, formal training, colloquia and workshops. Conversely, the Research Management team agreed that knowledge was passed through mentoring, informal interaction, formal meetings, seminars and workshops as compared to employees who agreed that knowledge was passed through formal training and seminars (Table 3.10). This resulted to significant association ($\chi 2$ =88.73; d.f.= 28; p=0.000) on the rate of agreement and methods of passing knowledge among employees.

Table 3.10. Methods of passing knowledge among research management team and employees

	Strongly agree		Agree		Moderately agree		Disagree		Strongly disagree		Strongly agree		OV%		Fre (n)	
Methods	RM	EMP	RM	EMP	RM	EMP	RM	EMP	RM	EMP	RM	EMP	RM	EMP	RM	EMP
Coaching	14	13	14	26	57	29	0	23	14	10	3.14	3.09	62	60	7	253
Mentoring	14	11	29	33	57	34	0	17		6	3.57	3.25	72	65	7	255
Informal interaction	14	17	57	38	29	30	0	9	0	7	3.86	3.45	78	69	7	255
Formal training	0	17	43	38	57	26	0	12	0	7	3.43	3.46	68	69	7	256
Formal meetings	14	20	57	45	29	22	0	9	0	4	3.86	3.69	79	74	7	259
Colloquia	0	11	57	30	29	28	14	19	0	13	3.43	3.07	68	61	7	245
Seminars	0	20	71	40	29	24	0	11	0	6	3.71	3.55	74	70	7	256
Workshops	0	15	71	36	29	26	0	16	0	7	3.71	3.35	74	67	7	247

EMP – Employees **RM – Research Management team**

This implies that employees were not well exposed on the capture of tacit knowledge from fellow colleagues, which can be obtained through coaching, mentoring and informal interaction among others. In particular, coaching and mentoring helps to build relationships between staff and catalyze the capture of tacit knowledge from more experienced colleagues. The other methods of accessing knowledge include formal training, formal meetings, seminars, colloquia and workshops. Indeed it is known that 80% of knowledge in any organization is tacit as compared to 20% explicit . KEFRI needs to focus more on capturing tacit knowledge in order to exploit cumulated experiences of the staff and to prevent knowledge loss when staff leave the organization or move stations. This was buttressed by employees who moderately agreed at a mean score of 3.29 that they were encouraged to share their knowledge with colleagues at all levels of the organization (Figure 3.5). Nurturing an environment where sharing knowledge and working across organizational boundaries, especially between technical and non-technical staff is valuable for knowledge access and sharing.

15 Dalkir K. 2005. Knowledge Management theory and practice. Mc Gill University, Elsevier Inc.

However, this in contrast with rating by Research Management team whose overall scale was 3.71 corresponding to agree. This implied that the Research Management team was in agreement that KEFRI employees were actively encouraged to share knowledge with colleagues at all levels of organization (Figure 3.6).

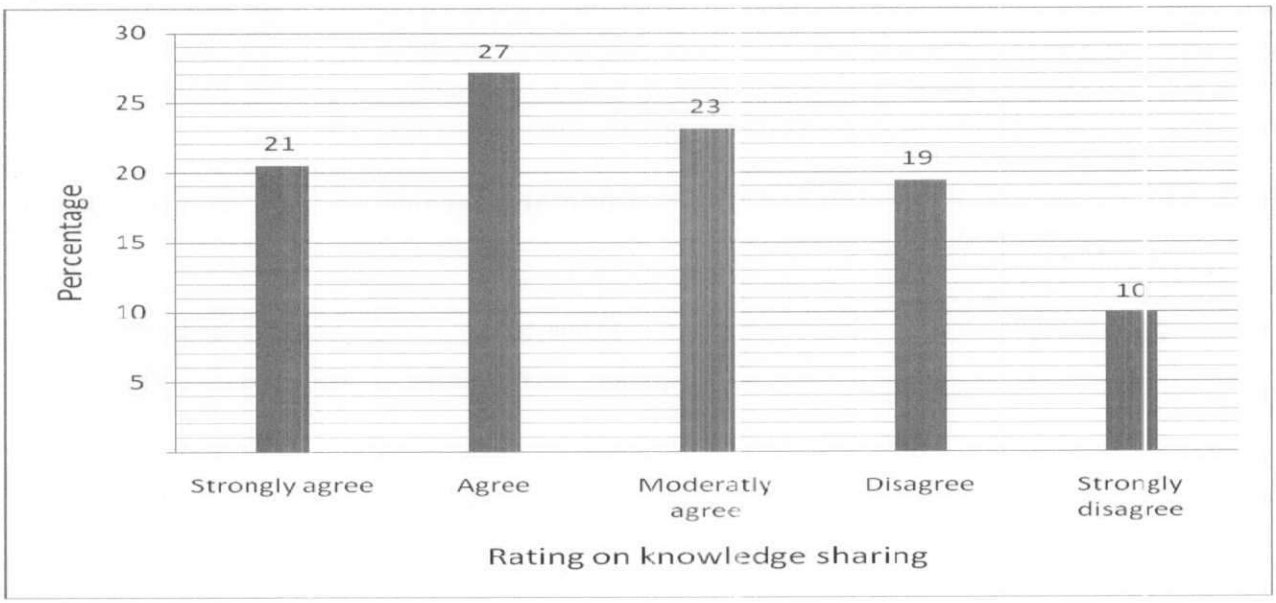

Figure 3.5. Rating by employees on whether they were actively encouraged to share knowledge with colleagues at all levels of organization

Nevertheless, the scale was below the expected of five for strongly agree as this team is charged with responsibility of executive decisions of the institute. Therefore, this demonstrates some possible gaps that a KM strategy needs to address in order to encourage employees to share tacit and explict knowledge. This may also be enhanced by a mechanism that recognises and rewards knowledge sharing.

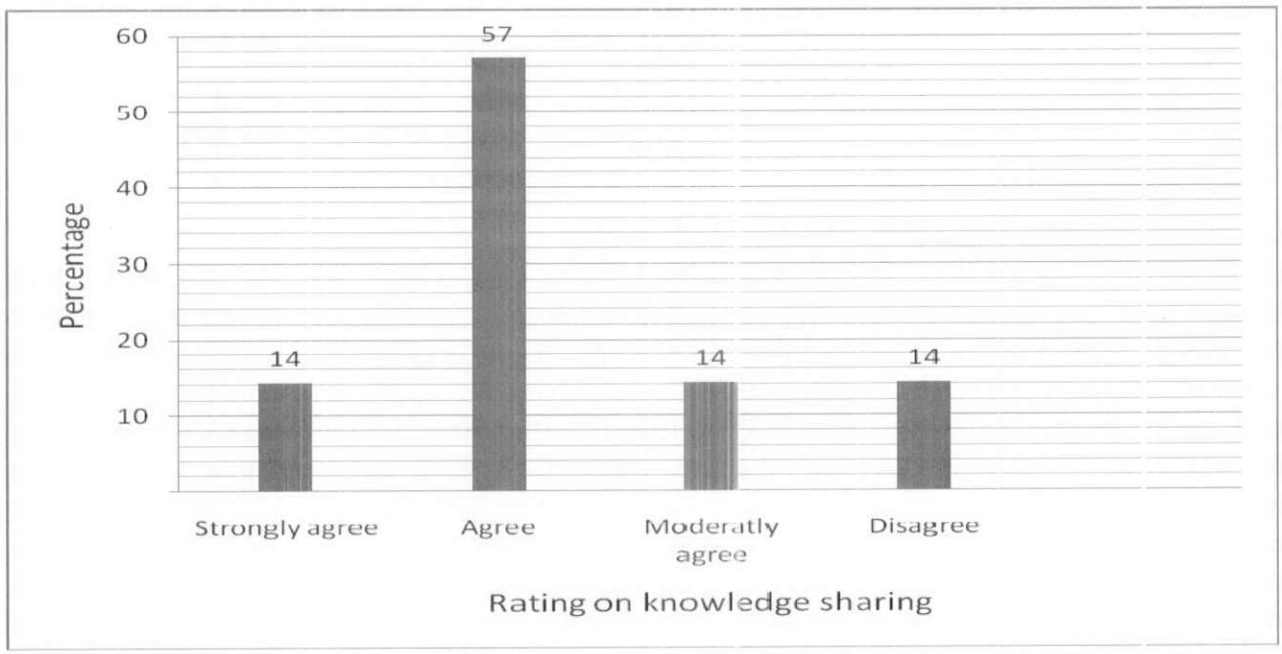

Figure 3.6. Rating by Research Management team on whether employees are actively encouraged to share knowledge with colleagues at all levels of organization

3.1.3. Systems of information and Knowledge sharing

The main communication systems used by employees on information and knowledge sharing were meetings, open field days and email whereas that of Research Management team were; internet/ emails, print media and conference and workshops (Table 3.11).

This implied a need to expound on systems used for communication that are faster and more efficient. This demands a fully functional ICT Section to support communication and fast track the process of reliable information access and sharing, as ICT is a key enabler of organizational knowledge management to enhance knowledge creation, capture, sharing and application.

Table 3.11. Systems used by employees and Research Management team on information and knowledge sharing

Systems of communication used	Employees		Research Management team	
	Frequency	Percentage	Frequency	Percentage
Databases	95	7	4	5
Intranet	71	5	3	4
Internet	127	9	6	8
E-mail	154	11	6	8
Instant chat/yahoo messenger	63	4	3	4
Social networks-face book, twitter	45	3	3	4
Meetings	213	15	6	8
Conferences and workshops	165	11	6	8
Community functions-churches, barazas	80	5	5	7
Open field days, ASK shows	196	13	7	9
Print /electronic media	108	7	7	9
Monitoring and evaluation	114	8	6	8
Decision support systems	28	2	5	7
Informal discussion	-	-	7	9
Total	**1459**	**100**	**74**	**100**

3.2 Staff capacity in Knowledge creation and sharing

On enhancing capacity of the staff to effectively handle tacit and explicit knowledge, the Research Management team agreed that the training and development opportunities are explicitly linked to the strategic direction of KEFRI, KEFRI's position towards its employees is credible as reflected in career development, KEFRI's position towards its employees is credible as reflected in institute wide goals and employees know the skills that KEFRI needs in the next five years (Table 3.12). In contrast, the employees moderately agreed over the same except for training and development opportunities are explicitly linked to the strategic direction of KEFRI. Similarly, the Research Management team moderately agreed that employees know the career development philosophy of KEFRI and what their role is in the development process, KEFRI's position towards its employees is credible as reflected in core values and the strategic plan of KEFRI is consistently communicated to all levels of employees (Table 3.12). This demonstrates a clear gap on handling KEFRI's knowledge assets in order to effectively achieve desirable goals within a spelt period of time.

Table 3.12. Capacity in knowledge management among employees and research management team

Capacity in knowledge management	Strongly agree		Agree		Moderately agree		Disagree		Strongly disagree		Strongly agree		Overall %	
	EMP	RM	EMP	RM	EMP	RM	EMP	RM	EMP	RM	EMP	RM	EMP	RM
Training and development opportunities are explicitly linked to the strategic direction of KEFRI	23	14	37	43	25	43	9	0	6	0	3.62	3.71	72	74
Employees know the career development philosophy of KEFRI and what their role is in the development process	12	0	35	14	32	43	16	43	5	0	3.34	2.71	66	54
KEFRI's position towards its employees is credible as reflected in career development	14	14	34	43	33	0	11	0	8	0	3.34	3.71	66	74
KEFRI's position towards its employees is credible as reflected in core values	20	0	34	29	31	0	10	0	5	0	3.54	3.29	70	66
KEFRI's position towards its employees is credible as reflected in institute wide goals	15	29	37	29	34	0	10	0	5	0	3.47	3.86	70	78
Employees know the skills that KEFRI needs in the next five years	12	14	26	43	34	14	19	14	10	0	3.10	3.57	62	72
The strategic plan of KEFRI is consistently communicated to all levels of employees	15	14	27	29	25	29	23	29	11	0	3.12	3.29	62	66

EMP – Employees **RM – Research Management team**

This was further supported by overall mean rating of moderately agree by research management team at mean score of 3.43 and employees at a mean score of 3.47 (Figure 3.7) on KEFRI's understanding of the revenue generating potential of its knowledge assets and develops strategies for marketing and selling them

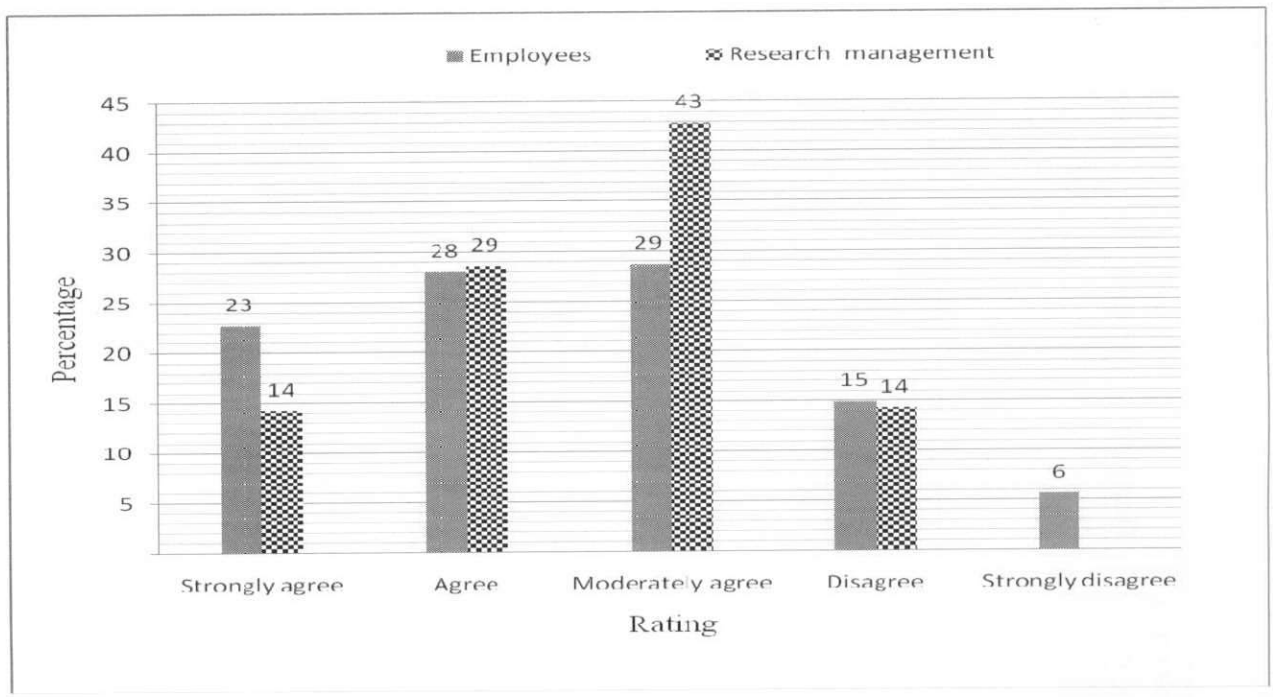

Figure 3.7. Rating on KEFRI's understanding on revenue-generating potential of its knowledge assets

3.2.1 Staff competency, knowledge acquisition and sharing

The Research Management team acquired most of their skills/expertise in undertaking their job through KEFRI, self learning, formal training, at their last job assignment, participation in workshops and seminars. This indicated the investment of KEFRI's knowledge asset to its top management to enhance service delivery. Therefore, there is a need to have a clear mechanism for sharing of information and knowledge to boost the expected outputs.

Similarly, 60% of employees acquired most of their skills/expertise from KEFRI in undertaking their job responsibilities (Figure 3.8). The other method was through participation in workshops and seminars and points to some degree of exposure through KEFRI. This implies that there is a significant contribution in building up the capacity of the staff to undertake their duties which culminates to build up of explicit and tacit knowledge that needs to be accessed and shared among employees for improving productivity.

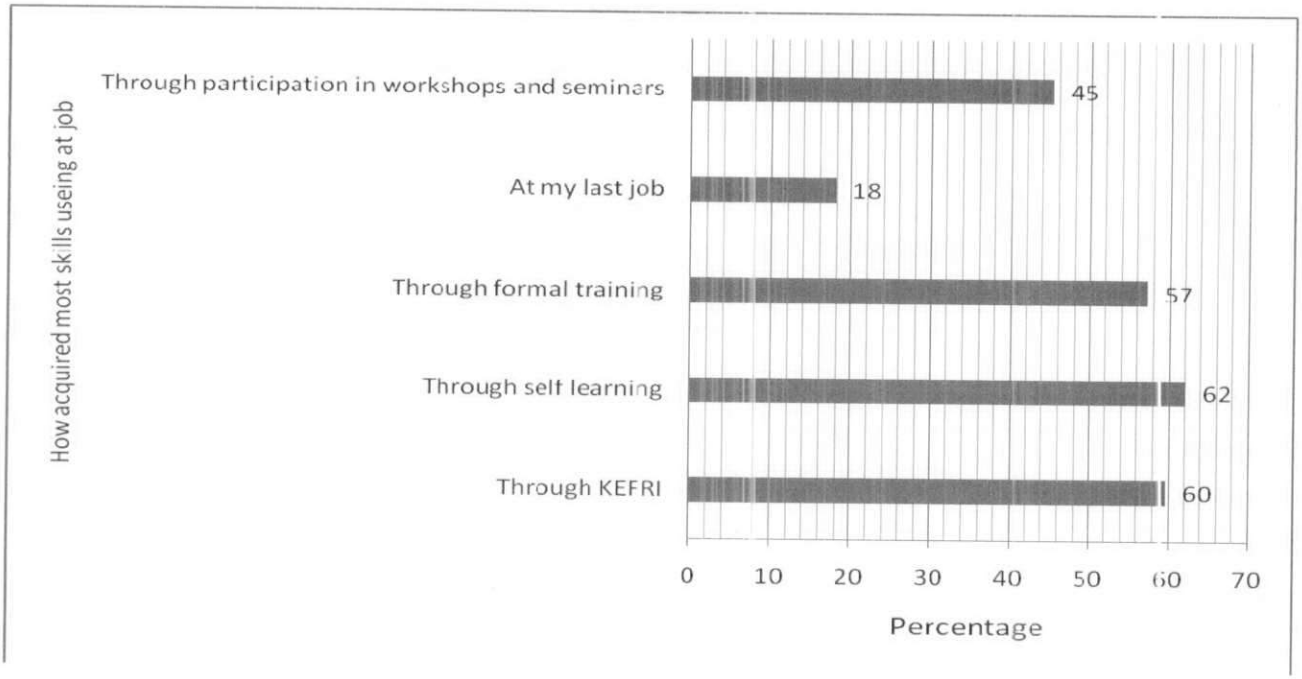

Figure 3.8. How employees acquired most skills/expertise in their job undertakings at KEFRI

The significant contribution of skill acquisition through training indicates the competence of staff in undertaking their assigned duties which exposes them to various modes of knowledge. KEFRI has a well-coordinated training program that supports employees in job delivery. However, there were significant differences ($p<0.05$) between Departments of Research and Development and Finance and Administration employees on various ways they acquired most of their skills in undertaking their jobs (Table 3.13). In particular, a high percentage (76%) of staff in Research and Development had acquired most of the skills to do their job through KEFRI as compared to 49% of staff from Finance and Administration. The other notable significant variation was 32% of the staff of finance and administration had acquired work job skills through self-learning. This indicated that KEFRI employees put some effort in achieving competency in their job delivery through acquisition of knowledge and skills needed to undertake their duties more effectively and efficiently. This was supported by the fact that 100% of the interviewed Research Management team had received short term training in the last one year.

Table 3.13. Comparisons between employees at department of research and development and finance and administration on how they acquired their skills for job delivery

Employees Department	Through KEFRI	Through Self learning	Through formal training	At may last job	Participation in workshops & seminars		
	%	%	%	%	%	Total (n)	Mean rank
Research and Development	76	14	7	2	0	94	80.2
Finance and administration	49	32	13	3	2	90	105.4
Statistics	Mann Whitney-U test =3070.5; p=0.000						

In contrast, 39% of employees from the two departments had received short training course as compared to 61% who had not received such trainings. This was evenly distributed between the departments (Table 3.14).

Table 3.14: Comparison between departments on whether employees received and did not receive short trainings

Employees Department	Yes	No	Total (n)
	%	%	
Research and Development	44	56	94
Finance and administration	38	62	90

The discrepancies on short term training among employees as compared to Research Management team need to be considered to enhance the job competencies for service delivery and information/ knowledge sharing. This was well supported by the Research Management team who perceived that KEFRI uses learning to support existing core competencies of individual staff. However, this was moderately agreed at a mean score of 3.29 by employees. Consequently, Research Management team agreed with a mean score of 3.83 that KEFRI employees are evaluated and compensated for their contribution to the development of organization knowledge. This was in sharp contrast with employees who moderately agreed at a mean score of 2.73 (Table 3.15). Employees need to be recognized and rewarded for contribution to the development of organization knowledge.

Consequently, none of the employees at Research Management team interviewed had received long term training in the recent past (3-5years) as compared to 28% of other employees from both departments. Overall, there were significant differences ($p<0.05$) between research and development and finance and administration employees on long training in the recent past (Table 3.16). Employees who were in long-term training in the recent past were mainly from research and development as compared those from finance and administration.

Training plays a significant role in improving efficiency and competency of the staff in job delivery. The employees in both departments indicated the knowledge and skills needed for them to effectively perform the duties in the current position (Table 3.17). In computer and IT /GIS/Telephone and laboratory, the majority were at the beginner's level. Regular training needs assessment should be carried out to determine the relevant training opportunities for all staff to enable them effectively perform their duties. In addition, this implies the need to provide further training for employees in order to effectively create and share knowledge among staff and relevant KEFRI stakeholders.

Table 3.15. Rating of KEFRI on building staff competencies and compensation for knowledge creation

	Strongly agree		Agree		Moderately agree		Disagree		Strongly disagree		Strongly agree		Overall %	
	EMP	RM	EMP	RM	EMP	RM	EMP	RM	EMP	RM	EMP	RM	EMP	RM
KEFRI uses learning to support existing core competencies of individual staff.	19	17	29	67	26	17	15	0	11	0	3.29	4.00	66	80
KEFRI employees are evaluated and compensated for their contribution to the development of organization knowledge	10	17	20	50	23	33	28	0	19	0	2.73	3.83	54	76

EMP – Employees **RM – Research Management team**

Table 3.16. Comparison on recent past trainings between research and development and finance and administration employees

Employees Department	Yes %	No %	Total (n)	Mean rank
Research and Development	41	59	95	83.4
Finance and administration	22	78	88	101.2
Statistics	Mann Whitney-U test =3366.5; p=0.000			

Table 3.17. Knowledge and skills needed by employees to effectively and efficiently perform their duties and proficiency level

Knowledge and skills needed to perform duties	Proficiency level			Total (n)
	Beginner	Advanced	Expert	
Computer and IT skills /GIS/Telephone	54	41	5	79
Laboratories	58	33	8	12
Nursery management/planting seedlings/plotting	33	33	33	9
Library	40	0	60	5
Technical and professional training/ Dissemination.	36	49	16	70
Scientific writing/ Research methods/report writing/ data collection and analysis	19	59	22	27
Administration, management and leadership skills	29	56	15	34
Seed collection, tree breeding and climbing, grafting	17	67	17	6
Practical's in the field	20	80	0	5
Collaboration / Community Mobilization	0	33	67	3

The Research Management team were advanced and experts in coordination of scientific and management activities/research knowledge/strategic leadership/financial management and expertise advice/mentoring/advisory/consultation as well as silviculture/agricultural crop science/selection and breeding (Table 3.18). The expertise's of the Research Management team forms a knowledge asset for mentoring, coaching and guidance of senior, middle and junior staff.

Table 3.18. Knowledge and skills needed by Research Management team to effectively and efficiently perform their duties and proficiency level

Knowledge and skills needed to perform duties	Proficiency level			Total (n)
	Beginner	Advanced	Expert	
Coordination of scientific and management activities/research knowledge/strategic leadership/financial management	0	38	63	8
Team building/collaboration	0	0	1	1
Expertise advice/mentoring/advisory/consultation	25	0	75	4
Formal training/IT/silviculture/agricultural crop science/selection and breeding	0	33	67	6

3.2.2. Staff training and knowledge application

Of the employees who attended short/long term training, 39% shared skills and knowledge gained (Figure 3.9) as compared to 86% of Research Management team. Also, the latter, 14% somehow shared skill and knowledge gained. This indicates a need for better and efficient mechanisms of knowledge sharing among the employees to enhance service delivery. An institution invests in capacity building with an aim of improving its corporate profile/image and competitive edge over others. Therefore, KEFRI investment in training of staff needs to trickle to employees of similar discipline in order to strengthen product and knowledge services.

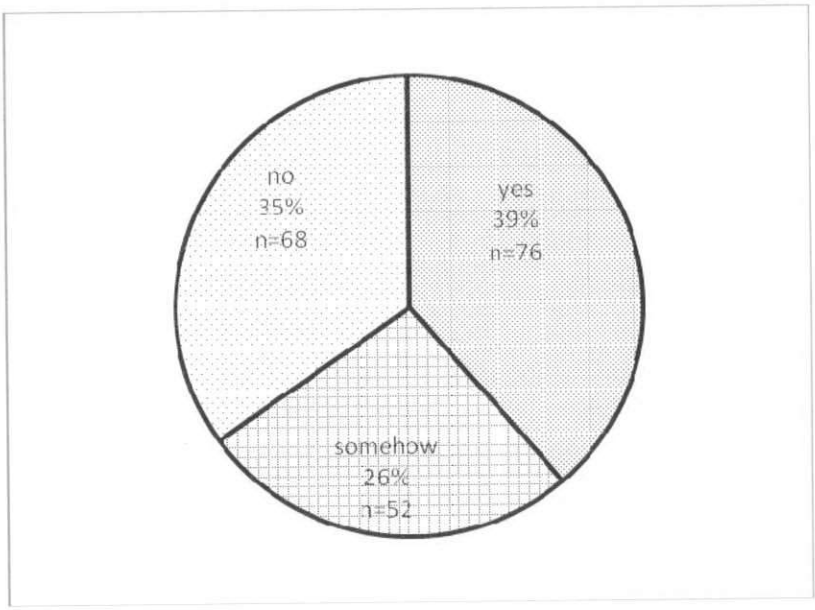

Figure 3.9. Sharing of skills and knowledge gained after short or long term training of employees

The type of skills and knowledge gained by the employees during short and long term training were tree planting and seeds/seedling management, public relations/team building and extension material writing (Table 3.19).

Table 3.19. Type of skills and knowledge gained during short and long term courses by employees

Skills and knowledge gained	Frequency	Percentage
Tree planting and seeds/seedling management	20	15
Management of soil nutrient analysis	12	9
Training skills	16	12
Store management and its operations	5	4
Disseminating/marketing of products and services	6	4
Course in respective area of specialization	18	13
Public relations/team building	20	15
Technological development skills	11	8
Health and safety maintenance	6	4
Extension material writing	18	13
Leadership skills	1	1
Time management	1	1
Change management	1	1
Total	**135**	**100**

The type of skills and knowledge gained by Research Management team were strategic/change/ project management, team building among others (Table 3.20).

Table 3.20. Skills and knowledge gained during short training by Research and Management team

Skills and knowledge gained	Frequency	Percentage
Strategic/change/project management	5	42
Team building	3	25
Research methods/proposal development	2	17
Scientific writing	1	8
Project management/proposal development	1	8
Total	**12**	**100**

The methods used by employees in sharing of skills and knowledge gained during training were informal interaction, seminars, workshops and trainings during open and field days (Table 3.21) whereas that used by Research Management team included mentoring/advisory/expert advice (36%), on-job training (36%) and one to one discussions (27%). This depicted the kind of knowledge passed among employees. For example, informal interaction, mentoring, on-job training and one-to-one discussions enhances access of tacit knowledge whereas seminars and colloquia lead to sharing of both tacit and explicit knowledge. This was further evidenced on rating of various ways on knowledge application and sharing among employees and research management team (Table 3.22). Opportunities for informal learning and sharing of knowledge should be created for both technical and non-technical staff to enhance knowledge access and sharing.

Table 3.21. Methods used for skills and knowledge sharing among employees

Methods of sharing	Frequency	Percentage
Seminars/workshops	33	27
Informal interaction	43	35
Trainings through open days and field days	35	28
Colloquia	5	4
Email	5	4
Newsletter and website	3	2
Total	**124**	**100**

The results in Table 3.22 showed employees and research management team agreed they find it easy to apply training they have received at their work station, there are opportunities to cross and learn new skills, there are opportunities for career development within KEFRI and they are encouraged to take the initiative in determining own career development. However, employees moderately agreed that there exist opportunities to work with mentors at their work station. This demonstrates a gap on exploiting tacit knowledge that staff had acquired over time through their trainings and other opportunities. However, it was encouraging that both employees and Research Management team agreed that knowledge acquired first and foremost belongs to self and KEFRI (Table 3.23). This portrayed a good picture of attitude change and increases chances of knowledge sharing once correct mechanisms and systems are put in place

Table 3.22. Knowledge application opportunities among employees and research management team

Knowledge application and sharing opportunities	Strongly agree		Agree		Moderately agree		Disagree		Strongly disagree		Strongly agree		Overall %	
	EMP	RM	EMP	RM	EMP	RM	EMP	RM	EMP	RM	EMP	RM	EMP	RM
At work station I find it easy to apply training I have received	32	43	37	57	19	0	8	0	5	0	3.83	4.43	76	88
There are opportunities available to work with a mentor	19	33	34	33	25	33	14	0	8	0	3.42	3.67	68	74
There are opportunities to cross and learn new skills	25	14	34	57	20	14	13	14	7	0	3.56	3.71	72	74
There are opportunities for career development within KEFRI	31	14	33	43	20	29	10	14	7	0	3.7	3.57	74	72
Encouraged to take the initiative in determining own career development	24	43	39	29	18	29	10	0	9	0	3.59	4.14	72	82

EMP – Employee **RM – Research Management team**

Table 3.23. Ownership of knowledge among employees and research management team in their current job

Ownership of knowledge	Employees (%)	Research Management team (%)
Me alone	6	20
KEFRI alone	9	0
Both self and KEFRI	85	80

3.3. Knowledge management infrastructure

The variables assessed on knowledge management infrastructure included location of information storage, speed of access of information from various modes of storage, access and frequency of ICT tools. The findings were as presented in subsection 3.3.1 to 3.3.3.

3.3.1. Location information storage at work place

The results showed KEFRI employees and research management team stored their information in paper-based documents and with colleagues (Table 3.24). This indicated that there was no central repository of the information at the institute across employees and the Research Management team. Of interest was information with colleagues implying that retrieval of such information will be based on individual availability and efficient memory. This also suggested that institutional memory is mainly with individual staff. Therefore, in the event that employees leave the institute, retire, or die it will be difficult to access important information for decision-making for reference and reuse. This presents an opportunity to institutionalize information storage and retrieval especially for tacit knowledge.

Table 3.24. Location/modes of information storage by employees and Research Management team

Location/modes of storage	Employees		Research Management team	
	Frequency	Percentage	Frequency	Percentage
In paper based documents	193	37	7	23
With colleagues	127	24	6	19
On my personal laptop	51	10	6	19
In my office/desk	81	16	6	19
On my workstation desktop	68	13	4	19
Total	512	100	31	100

The Research Management team (80%) had a specific location for accessing KEFRI information as compared to 57% of the employees (Table 3.25). Similarly, there was almost a similar percent of employees and Research Management team who had no specific location for information access. This was evidenced by different types of locations such as registry, fellow colleagues, library, internet, notice boards and office cabinet among others for information access (Table 3.26). This implies a need to have a centralized repository where relevant and critical information will be stored for easy access to assist in enhancing productivity through reducing cost of finding and accessing different types of valuable knowledge and minimizing duplication of efforts and staff making the best possible decisions thus performing processes faster and saving on costs.

Table 3.25. Evaluation on specific location for information access at workplace

Measure on specific location	Employees		Research Management team	
	Frequency	Percentage	Frequency	Percentage
Yes	148	57	4	80
Somehow	43	17	0	0
No	66	26	1	20
Total	**257**	**100**	**1**	**100**

Table 3.26. Type of location of information storage among employees

Type of locations	Employees		Research Management team	
	Frequency	Percentage	Frequency	Percentage
Office cabinet	-	-	4	40
Registry	42	19	-	-
Fellow staff/colleague	15	7	-	-
Library	93	42	2	20
Computer/internet	58	26	3	30
Notices	11	5	1	10
Workshops/seminars	5	2	-	-
Total	224	100	10	100

3.3.2. Speed of information access from various modes of storage

The speed of access of various modes of storage was mainly rated moderate and fast (Table 3.27). The Research Management team (80%) rated the speed of information from paper-based documents as moderate as compared to 53% by employees. Comparatively information access stored at workstation desktops was rated fast by Research Management team (80%) as compared to 52% by employees. This indicated a need for identifying a suitable ICT system and tools to facilitate faster access to information.

Table 3.27. Modes of information storage and speed of access by employees and Research Management team

Modes of information storage	Speed of access						Frequency	
	Slow		Moderate		Fast			
	EMP	RM	EMP	RM	EMP	RM	EMP	RM
In paper based documents	32	0	53	80	15	20	203	5
With colleagues	28	20	47	60	25	20	187	5
Person laptop	15	0	12	40	72	60	99	5
Workstation desktop	16	0	32	20	52	80	117	8
Specific location (mobile phones, publications, administration office)	25	-	50	-	25	-	12	-
Library/books	0	-	100	-	0	-	1	-

EMP – Employees RM – Research Management team

3.3.3. Access and frequency use of ICT tools

One hundred percent of the Research Management team had access to computers, internet and email accounts as compared to about 61-66% of employees (Figure 3.10). This points out a need for lower cadre of staff to be facilitated with access to computers, internet and email accounts in order to improve information access and sharing. The ICT tools are considered important in knowledge management because they are enablers in access and sharing of information. They are also faster and more convenient in information sharing as compared to paper-based documentation. This was evidenced by a high rating on importance of computers and internet by employees despite limited access by some (Figure 3.11).

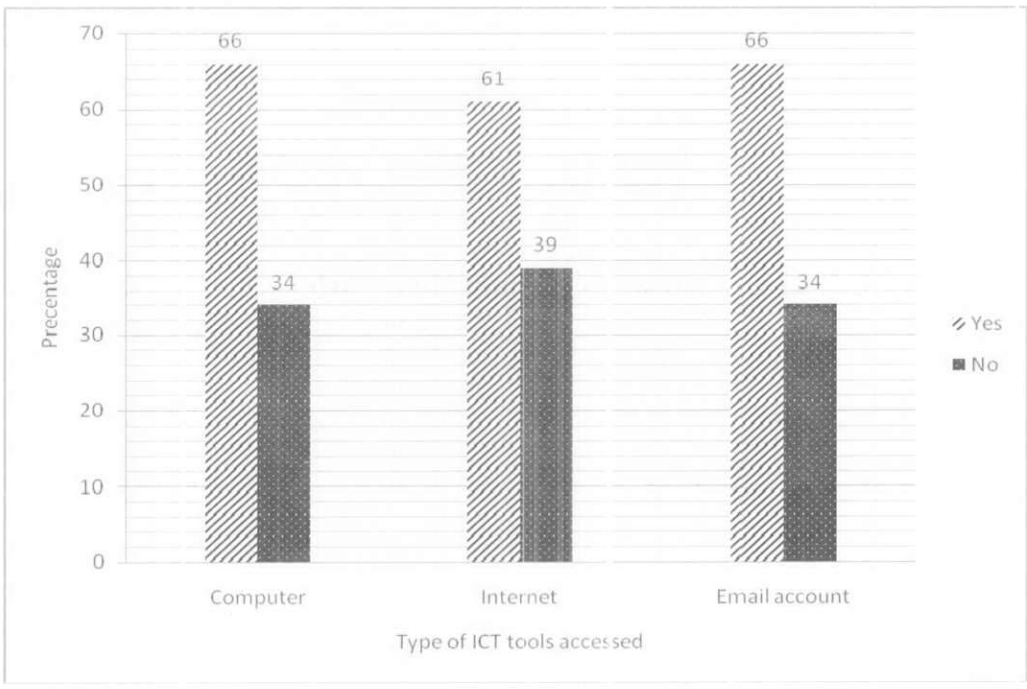

Figure 3.10. Type of ICT tools accessed by employees

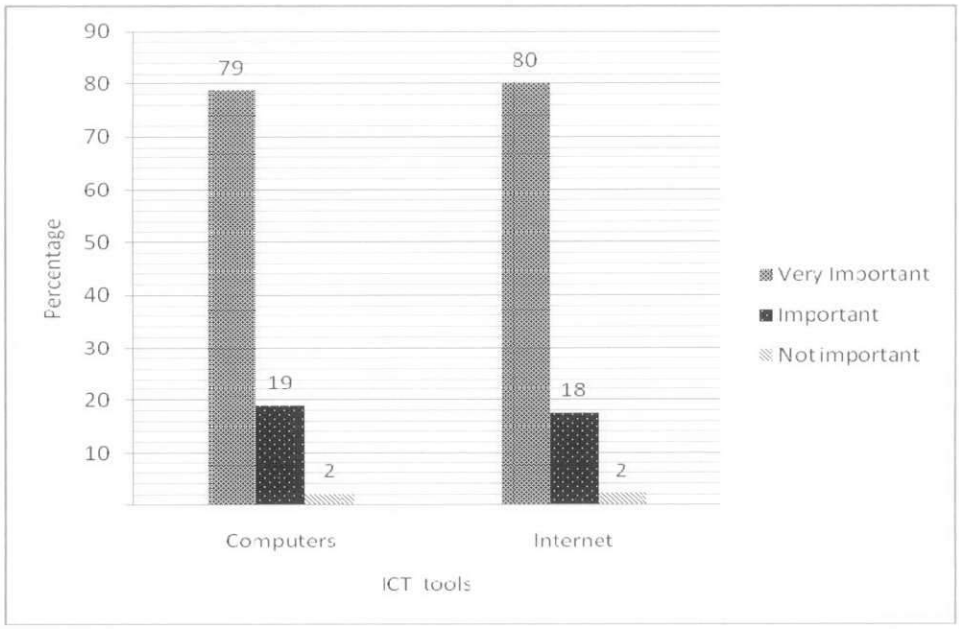

Figure 3.11. Rating on the importance of ICT tools

The results further showed majority of Research Management team frequently used Ms Word, Ms Excel, internet based-email accounts and basic browsing as compared to employees (Table 3.28). Employees rarely used online/offline databases, e-discussion and wed-based email. Opportunities should be created to allow internal e-discussions, as this will enable staff to discuss and exchange ideas and share information contributing to learning and a knowledge-sharing environment among employees and research team and across KEFRI centers. Other opportunities include use of social media sites like face book and twitter, instant chat applications like google talk to connect with other scientists and exchange relevant information.

Table 3.28. Frequency of use of ICT tools by employees and research management team

ICT tools	Frequency of use						Frequency (n)	
	Frequently		Sometimes		Rarely			
	EMP	RM	EMP	RM	EMP	RM	EMP	RM
Ms Word	54	100	23	0	23	0	164	6
Ms Excel	39	84	24	17	37	0	153	6
Ms Access	20	33	29	33	51	17	144	6
Ms PowerPoint	25	50	23	50	52	0	137	6
Ms Publisher	21	50	20	33	59	17	133	6
KEFRI email account	43	50	20	25	38	25	143	4
Internet based email account	56	100	18	0	26	0	132	7
Basic internet browsing	53	80	16	20	31	0	138	5
Social networking sites e.g face-book, twitter	26	25	24	25	50	50	111	4
Online databases	13	0	17	67	70	33	91	3
offline databases	17	25	16	75	68	0	84	4
e-discussion, email based	13	25	26	50	61	25	84	4
e-discussion web based	12	20	12	40	76	40	42	5

EMP – Employees **RM – Research Management team**

In addition, the findings showed that Ms Word, Ms Excel, internet based-email account and basic internet browsing were very easy to use by research and management as compared to employees (Table 3.29). There is need to increase the capacity of employees to use various ICT tools as this will improve information access and sharing.

Table 3.29. Evaluation on how easy to use ICT tools by Research Management team and employees

ICT tools	How easy in use						Frequency (n)	
	very easy		Easy		Not easy			
	EMP	RM	EMP	RM	EMP	RM	EMP	RM
Ms Word	42	67	35	33	23	0	156	3
Ms Excel	34	100	30	0	36	0	140	3
Ms Access	23	33	28	67	49	0	131	3
Ms PowerPoint	20	33	36	33	44	33	128	3
Ms Publisher	20	33	27	33	52	33	124	3
KEFRI email account	30	0	33	33	37	67	127	3
Internet based email account	47	67	25	33	28	0	128	3
Basic internet browsing	50	67	23	0	28	33	133	3
Social networking sites e.g. face-book, twitter	31	0	30	50	39	50	106	3
Online databases (specify)	18	0	25	50	58	50	85	2
offline databases	17	0	21	33	62	67	76	3
e-discussion, email based	17	33	32	0	51	67	76	3
e-discussion web based	15	0	27	50	59	50	39	2

EMP – Employees **RM – Research Management team**

3.4. Stakeholders perception of KEFRI's information and knowledge products and services

The key variables measured in this component were types of stakeholders and their level of interaction with KEFRI, awareness and perceptions on KEFRI knowledge products and services and products and services sought by stakeholders. The findings were as presented in section 3.4.1, 3.4.2 and 3.4.3.

3.4.1. Type of stakeholders and level of interaction with KEFRI

The KEFRI clients/stakeholders interviewed were farmers, government institutions/departments, community based organization, non-government organizations, business firms, entrepreneurs, research organizations, media organizations and learning institutions (Figure 3.12).

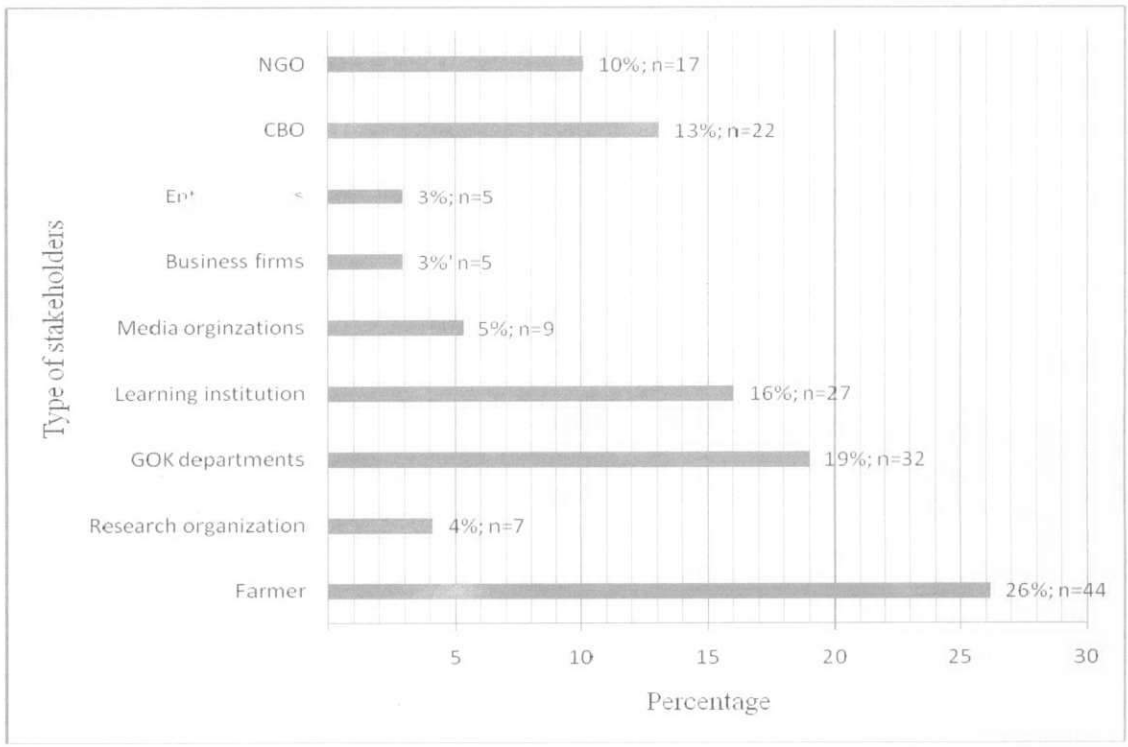

Figure 3.12. Type of stakeholders interviewed

Of the interviewed stakeholders, research organizations had interacted most with KEFRI followed by farmers and government departments (Table 3.30). Overall, the interaction period of stakeholders with KEFRI was sufficient to provide appropriate assessment of KEFRI knowledge products and services. This was evidenced with significant difference ($p<0.05$) among stakeholders on the years interacted with KEFRI. Consequently, there was no significant difference ($p>0.05$) on frequency of stakeholders interaction with KEFRI implied that they had equally interacted with KEFRI. The overall results on frequency of interaction showed that majority of the stakeholders had often interaction with KEFRI staff (Table 3.31).

Table 3.30. Mean number of years stakeholders interacted with KEFRI

Type of stakeholders	N	Mean No. of years	s.e	Minimum	Maximum
Farmer	39	9.7	0.97	2	25
Research organization	6	11.2	3.56	2	24
GOK department	30	9.2	1.22	1	25
Learning institution	24	6.0	0.76	1	15
Media organization	9	5.6	1.07	2	12
Business firm	5	5.8	1.11	4	10
Entrepreneurs	4	5.0	1.78	2	10
CBO	22	6.7	0.57	1	15
NGO	17	5.6	0.66	1	10

Test statistics $F_{(8, 147)} = 2.610$; $p=0.011$

Table 3.31. Frequency of interaction of stakeholders with KEFRI staff

Type of stakeholder	Very often (%)	Often (%)	Rarely (%)	Frequency (n)	Mean rank
Farmer	20	63	18	40	79
Research organization	67	33	0	6	41
GOK dept	40	43	17	30	66
Learning institution	12	84	4	25	77
Media org.	22	67	11	9	74
Business firm	20	80	0	5	70
Entrepreneurs	60	20	20	5	55
CBO	29	67	5	21	67
NGO	24	76	0	17	-
Total	**27**	**63**	**10**	**158**	
Test statistics	χ^2 =9.031; d.f. =7; p=0.250				

3.4.2. Awareness and perception of KEFRI knowledge products and services

The main product identified by stakeholder was seeds and seedlings (Table 3.32). The other products were sparsely identified whereas others such as water tanks, water pumps, pipes, polythene papers and water cans were not KEFRI products. However, they were related to tree nursery management requirements. This demonstrated the need to upscale information sharing of KEFRI knowledge products and services and extracting relevant extension messages in appropriate formats.

Table 3.32. Type of KEFRI products stakeholders were aware

Products	Frequency	Percentage
Bamboo products	11	4
Bamboo processing tools	9	3
Polythene papers	7	3
Seeds and Seedlings	149	55
Water tanks	7	3
Moneymaker machines	2	1
Water cans	5	2
Pipes	3	1
Water pumps	4	1
Beehives	1	
Books and publications	28	10
Harvesting	1	
Wood and Timber	25	9
Aloe vera products	3	1
Charcoal	2	1
Furniture	2	1
Non wood items	4	1
Technologies	6	2
Total	**269**	**100**

However, stakeholders correctly identified various services offered by KEFRI (Table 3.33). Of the services stakeholders were aware of include, training/seminars/workshops/internship and advisory services/consultations and this constituted 69% of the total services listed. This showed that information on capacity building services and consultancies were well known to most of the KEFRI clients.

Table 3.33. Type of services offered by KEFRI stakeholders were aware

Type of services	Frequency	Percentage
Training/seminars/workshops/internship	114	46
Advisory services/consultations	55	23
Seeds harvesting	7	3
Timber processing/furniture	6	2
Preservation	5	2
Soil analysis	22	9
Tree planting	13	5
Provision of conference facilities	26	10
Total	**248**	**100**

The perception about KEFRI products was rated 49% very good and 51% good. The rating was consistent across all types of stakeholders (Table 3.34). This provided an overall perception that stakeholders view KEFRI products as generally good.

Table 3.34. Stakeholders' rating of KEFRI products

Type of stakeholder	Rating of KEFRI products		
	Very good (%)	Good (%)	Frequency (n)
Farmer	62	38	42
Research organization	33	67	6
GOK dept	43	57	30
Learning institution	48	52	25
Media org.	67	33	9
Business firm	25	75	4
Entrepreneurs	80	20	5
CBO	36	64	22
NGO	65	35	17
Overall % and Total (n)	**49**	**51**	**160**

Similarly, the overall rating on KEFRI services was good implying stakeholders had sufficient information on the type and value of the services they receive from the institute (Figure 3.13).

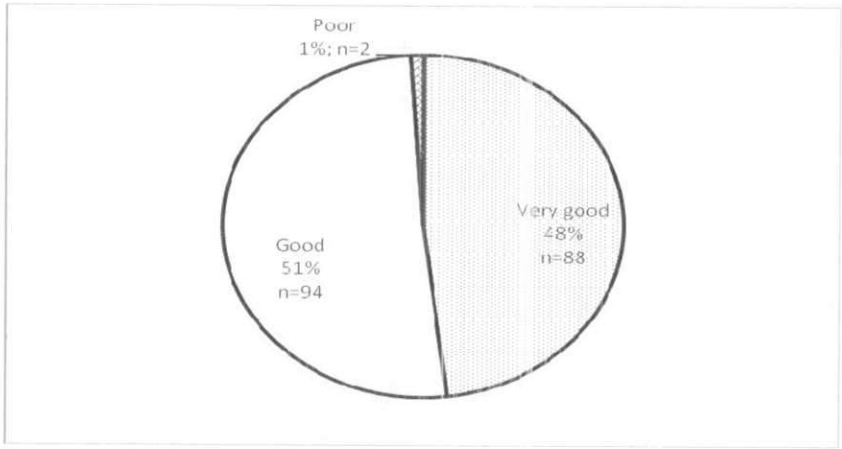

Figure 3.13. Rating of KEFRI services by stakeholders

The overall rating on KEFRI services was consistent across stakeholders except for media and government department that had a rating of not aware and poor, respectively (Table 3.35).

Table 3.35. Stakeholders' rating of KEFRI services

Type of stakeholder	Rating on KEFRI services				Frequency (n)
	Very good (%)	Good (%)	Poor (%)	Not aware (%)	
Farmer	61	39	0	0	43
Research organization	17	83	0	0	6
GOK department	37	60	3	0	30
Learning institution	50	50	0	0	24
Media organisations	63	25	0	12	8
Business firm	25	75	0	0	4
Entrepreneurs	100	0	0	0	4
CBO	55	45	0	0	22
NGO	59	41	0	0	17
Overall % & Total (n)	**52**	**47**	**1**	**1**	**158**

3.4.3. Products and services sought by stakeholders

Various products and services were sought by stakeholders with procurement of products leading at 25% in the category of services sought. This was followed by training and research and advisory services (Table 3.36). The diversity of services sought by stakeholders indicates extent at which information dissemination on KEFRI products and services is carried out. Such channels need to be documented as best practices (standard operating procedures) in information access and sharing.

Table 3.36. Types of products and services sought under various categories provided

Type of service and products sought	Type of service category sought								Frequency
	Research	Training	Purchase products	Procure services	Consultancy	Information	Advisory	Administrative	
Information dissemination on tree management	21	18	0	6	6	21	24	3	33
Training/workshop/seminars	16	47	3	5	3	11	11	5	38
Tissue culture biotechnology	10	13	3	58	0	10	3	3	31
Tree seedlings/seeds	2	7	82	4	2	2	2	0	56
Library	0	0	0	0	0	100	0	0	1
Biofuel	33	67	0	0	0	0	0	0	3
Collaboration -UNDP	25	0	25	25	0	0	0	25	4
Bamboo information/propagation/utilization/marketing	14	47	3	0	0	11	22	3	36
Participatory forest management	13	25	0	25	0	13	0	25	8
Tree species to plant	12	16	4	0	12	24	24	8	25
Fruit trees growing -agro forestry	50	33	0	0	0	17	0	0	6
Bee keeping	50	50	0	0	0	0	0	0	2
Merchant/supplier	0	0	0	100	0	0	0	0	1
Maintenance of equipment	0	0	0	0	0	100	0	0	1
Advisory services/intercropping	0	0	0	0	7	21	50	21	14
Aloe species and cultivation	50	33	0	0	0	17	0	0	6
Coconut oil	0	0	100	0	0	0	0	0	1
Recommendation letter	50	50	0	0	0	0	0	0	2
Technology transfer	50	0	0	0	0	0	50	0	2
Wood &non wood products	0	0	75	0	25	0	0	0	4

Type of service and products	Type of service category sought								Frequenc
Technical backstopping	0	0	0	0	0	0	0	100	1
Internship	0	100	0	0	0	0	0	0	1
Nursery management	11	50	7	4	0	4	14	11	28
	Research	Training	Purchase products	Procure services	Consultancy	Information	Advisory	Administrative	
Soil analysis	40	0	0	0	0	20	40	0	5
Fodder trees /soil fertility	0	33	0	0	0	0	67	0	3
Disease/pest management	33	0	0	67	0	0	0	0	3
Publications	0	0	50	25	0	25	0	0	4
Conferencing/catering	0	0	50	50	0	0	0	0	2

Further the study revealed the type of products stakeholders felt KEFRI needed to provide to the public that were not currently offered were already with various other clients. Those stakeholders identified are the same ones they were aware. This was similar to services with exception of marketing and extension services.

Sixty four percent of the stakeholders were aware of the organizations, groups and individuals that needed products and services but not able to get them from KEFRI (Table 3.37)

Table 3.37. Stakeholders' awareness on products and services required but not able to get from KEFRI

Type of stakeholder	Require products and services			Frequency (n)
	Yes (%)	Somehow (%)	No (%)	
Organization	67	24	9	21
Group	68	26	6	31
Individual	53	41	6	17
Mean	**64**	**29**	**7**	**69**

The type of products required in relation to value addition whereas the services were; information dissemination, advisory, soil analysis and training (Table 3.38).

Table 3.38. Type of products and services required by stakeholders but not able to get from KEFRI

Type of stakeholder	Service required						Frequency (n)
	Value addition/ Processing	Information dissemination	Advise on seed storage/harvesting	Marketing of forestry products	Soil analysis	Training on use of products and services	
Organization	0	30	20	0	20	30	10
Group	9	27	18	5	18	23	22
Individual	7	50	7	0	0	36	14
Overall % and total (n)	7	35	15	2	13	28	46

The reasons identified for not being able to get the services from KEFRI were: lack of extension services, KEFRI is not well-known, time limitation and distance to access the products and services needed (Table 3.39). This indicates a need for infrastructure to enhance information access and sharing. In addition an extensive campaign should be mounted to market KEFRI products and services to improve visibility of KEFRI and the impact and uptake of research and technologies.

Table 3.39: Reasons for stakeholder not able to get services and products from KEFRI

Reasons	Frequency	Percentage
No extension services-outreach	18	30
KEFRI not well known	9	15
Time limitation	6	10
Inadequate tree seed stock to meet demand	4	7
Illiteracy	4	7
Lack of information	8	13
Distance	11	18
Total	**60**	**100**

3.5. Dissemination of KEFRI knowledge information products and services

The results showed stakeholders agreed that KEFRI publications are easily readable, informative and of high quality, open and field days are well organized and convey KEFRI research activities and Technical staff effectively pass information on what KEFRI does (Table 3.40). This showed that use of publications, field days, open days and dissemination officers as well as other technical staff were effective in information sharing among stakeholders. Therefore, enhancing a platform of these dissemination outlets will strengthen information access and sharing to a wider group of stakeholders.

Table 3.40. Stakeholders' rating on KEFRI dissemination outlets

Dissemination outlets	Rating on dissemination pathways						Frequency (n)	Mean score
	Strongly agree	Agree	Moderately agree	Disagree	Strongly disagree	Not Aware		
KEFRI publications are easily readable, informative and of high quality	32	48	14	1	0	5	181	4.93
Open days are well organized and convey KEFRI research activities	48	34	10	2	0	6	182	5.09
Field days are well organized and convey KEFRI research activities	43	33	15	1	0	8	181	4.94
Talk shows in vernacular are enlightening on forestry and related activities	25	26	20	6	1	22	174	3.85
Talk shows on national media are enlightening on forestry and related activities	27	28	14	5	1	25	177	4.06
KEFRI website is well updated and informative	14	28	12	3	1	43	173	3.14
Technical staff effectively pass information on what KEFRI does	43	34	16	3	0	4	175	5.11
KEFRI scientific bi-annual conferences effectively provide relevant information on research development and setting of research agenda	16	18	12	1	0	53	173	2.86
Presentations during Centre Research Advisory Committees enhance awareness on KEFRI research activities and interact with stakeholders	20	25	9	1	0	45	173	3.3

In contrast, stakeholders disagreed that KEFRI website is well updated and informative, KEFRI scientific bi-annual conferences effectively provide relevant information on research development and setting of research agenda and presentations during Centre Research Advisory Committees (CRACs) enhance awareness on KEFRI research activities and interact with stakeholders. This suggests need for improving KEFRI website, packaging presentations during bi-annual conference and CRACs to effectively create awareness about and market KEFRI knowledge products and services.

In order to improve knowledge sharing and transfer among stakeholders, a number of suggestions were made that might be helpful to KEFRI. These were; use of media, design a platform for information dissemination/services offered by KEFRI, use of trainings and seminars/workshops, increase the number of open days and strengthen collaboration among stakeholders among others (Table 3.41).

3.6. Stakeholders perception of KEFRI staff competencies on knowledge creation and sharing

The results showed a number of stakeholders (51%) have not interacted with Directorate. However, of those who had interacted 45% found the directorate very knowledgeable and competent. This indicated positive perception on the competencies of the directorate in knowledge creation and sharing among stakeholders (Table 3.42). The research scientists and dissemination officers were rated as knowledgeable and competent in knowledge creation and sharing whereas senior management were overall rated fairly knowledgeable and competent. The latter was due to limited interaction with senior management and perhaps ambiguity on who were senior at KEFRI structure. Overall, the rating on procurement officers, support staff, accounts, administration and security was low due to limited interaction with stakeholders hence this may not provide sufficient evidence on rating of their knowledge and competencies.

Table 3.41. Suggestion on how KEFRI can enhance knowledge sharing and transfer to stakeholders

Ways of knowledge sharing and transfer	Frequency (n)	Percentage
Media advertisement	14	9
Design a platform for information dissemination / services offered by KEFRI	23	14
One stop shop/demo sites	11	7
Training of trainers	5	3
Have barazas at local levels	7	4
Recruit extension officers	3	2
Through trainings/ seminars/workshops	40	24
Have more open days	20	12
Target the youth	9	6
Value addition to products	6	4
Improve and use KEFRI website	2	1
Strengthen collaboration with stakeholders	21	13
Publish in local languages to enhance information sharing	3	2
Total	**164**	**100.0**

Table 3.42. Stakeholders rating of KEFRI staff categories on competencies and knowledge creation and sharing

KEFRI staff category	Rating on level of knowledge staff				Total (n)	Mean score
	Not interacted (%)	Not knowledgeable (%)	Fairly knowledgeable and competent (%)	Knowledgeable and competent (%)		
Directorate	51	1	3	45	162	2.42
Senior management staff	35	1	9	55	165	2.84
Researchers (scientists)	8	1	15	77	168	3.61
Dissemination officers	3	1	19	77	170	3.69
Trainers	14	1	17	68	167	3.4
Technicians/technologists	12	1	23	63	163	3.37
Foresters	23	2	23	53	169	3.05
Procurement/supplies staff	58	5	16	22	177	2.01
Support staff	50	3	26	21	153	2.18
Accounts	59	0	19	22	101	2.03
Administration	54	2	18	26	153	2.16
Security Staff	46	1	25	28	119	2.34

The main reasons provided for their rating were stakeholders always received excellent services with the staff they interacted with and researchers were competent and knowledgeable among others (Figure 3.14).

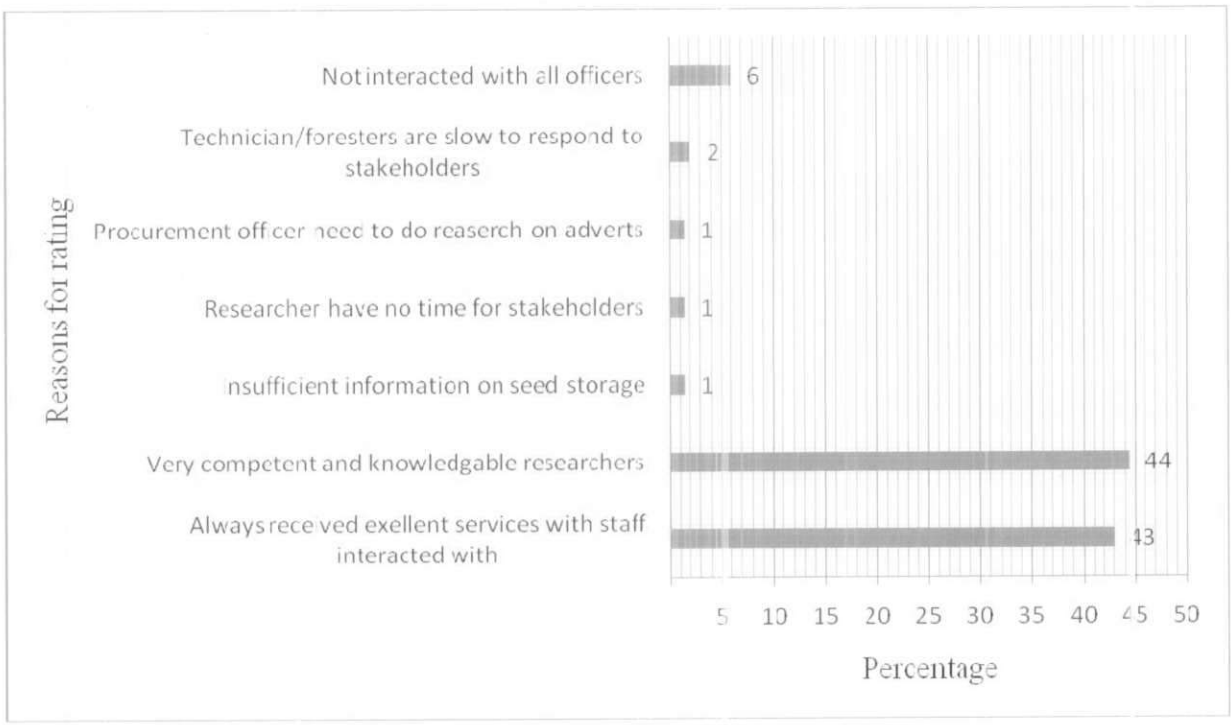

Figure 3.14. Reasons for stakeholders rating on KEFRI staff competencies and knowledge creation

3.7. Barriers and challenges of information flow

The barriers and challenges were addressed in the context of storing information, how to address the barriers and challenges in information sharing and how they should be mitigated.

3.7.1. Barriers to access and storage of information

The key barriers to access and storage of information were access to technology, organization policy, poor information systems/processes and inadequate capacity (human and physical/financial) as shown in Table 3.43. There is need for clear policies and mechanisms to enhance information and knowledge sharing. In addition there is need to improve access to technology especially for lower cadre of staff.

Table 3.43: Barriers to access and storage of information by employees and Research Management team

Barriers	Employees		Research Management team	
	Frequency	Percentage	Frequency	Percentage
Lack of time/being too busy	61	12	2	15
Access to technology	121	24	2	15
Poor technology	66	13	-	-
Organization policy	130	26	-	-
Organization directive	116	23	-	-
Poor information systems/processes	2	0	4	31
Inadequate capacity (human and physical/financial)	-	-	4	31
Inadequate infrastructure	-	-	1	8
Total	**496**	**100**	**13**	**100**

Some of these barriers could be addressed through linking offices and training users, work study allocation and improvement of the equipment in use among others.

3.7.2. Barriers to information retrieval

The notable barriers to information flow were inadequate facilities (financial, physical and human), poor storage/misplacement of files, computer illiteracy/ poor information systems / technology, some information are treated as confidential and lack of adequate information which is supposed to benefit staff (Table 3.44).

Table 3.44. Barriers to information retrieval by employees

Barriers of information retrieval	Frequency	Percentage
No team work	10	5
Inferiority complex	5	2
Bureaucracy leading to untimely communication	14	6
Inadequate facilities (financial, physical, human)	39	18
Misplacement of files / poor data storage	26	12
Internet efficiency is low/ no internet/ power outages/web sites not updated	29	13
Information generated is not in a specific place	13	6
No barriers	6	3
Computer illiteracy/ poor information systems / technology	35	16
Some information are treated as confidential / lack of adequate information	30	14
Ignorance / lack of organization police / knowledge on information access	7	3
Corruption / lack of accountability of staff	4	2
Clear policy guidelines	1	
Total	**219**	**100**

3.7.3. Challenges in sharing of information

The key challenges identified contributing to information sharing were; lack of an open-minded sharing environment, lack of trust in each other, no proper organization guideline on sharing information, no proper IT platform to share information, lack of confidence in other people's knowledge and capacity in ICT among others (Table 3.45). This indicated a need for attitude change among employees and research management team to encourage information sharing, build confidence among staff and strengthen ICT capacity to enhance information access and sharing. This was evidenced by suggestions on how to mitigate such challenges as provided by employees and research management team (Table 3.46).

Table 3.45. Challenges in information sharing among employees

Challenges in sharing information	Employees		Research Management team	
	Frequency	%	Frequency	%
Don't perceive there is an urgent need to share	65	23	3	43
Lack of an open-minded sharing environment	130	46	3	43
Lack of trust in each other	126	44	4	57
Lack of confidence in other people's knowledge	86	30	2	29
Lack of perceived benefits	68	24	4	57
No proper organization guideline on sharing information	115	40	4	57
Bureaucratic procedures involved in information sharing	54	19	1	14
No proper IT platform to share information	92	32	4	57
Don't know about other people's knowledge	67	24	3	43
Don't know about other people's knowledge needs	63	22	3	43
Capacity in ICT	74	26	3	43
Task requires access of information from departments	36	13	3	7
Task requires access of information from division	21	7	2	5
Task requires access of information from programme	35	9	2	5
Task requires access of information from centre	6	12	2	5

Table 3.46. Mitigation measure of challenges of information sharing among employees

Mitigation measures	Frequency	Percentage
Attitude change/positive open share/equality	31	9
Recognition/awards/mentorship	22	6
Clear policy on information sharing	66	19
Collaboration/teamwork/integrity/sensitization	31	9
Training/awareness/seminars	91	26
Stop mistrust and bureaucracy	32	9
Database ICT development	47	14
Equip centre with ICT tools/capacity improvement	27	8
Total	**347**	**100**

Consequently, the challenges experienced on information sharing among staff across regional research centres were; poor IT platform/communication media, slow or no internet connection in most centres lack of interaction between employees in the various sub-centres and regional centres among others (Table 3.47). There needs to be fast reliable internet access in all the KEFRI eco regional centers and sub centers. Various ICT training programs should also be developed depending on the needs of the user.

Table 3.47. Challenges of sharing information among staff across regional centres and KEFRI headquarters

Challenges	Frequency	Percentage
Lack of interaction between employees in the various sub-centres and regional centres	42	17
Lack of awareness about employee's line of work for better performance	2	1
Slow or no internet connection in most centres / poor IT platform	62	25
Insufficient information from other research centers in KEFRI website	7	3
Head of sections / researcher do not share their experiences with their juniors	24	9
Poor coordination of meetings / ignorance	9	4
Lack of timely information / bureaucracy	18	7
Computer and general illiteracy among staff	9	4
Poor mode of communication / lack of funds trainings and seminars	46	18
No challenges to information sharing	7	3
Lack of confidence and trust among staff / motivation for creativeness	20	8
Lack of open minded sharing environment leading to inadequate and incomplete information	7	3
Total	**253**	**100**

3.7.4. Stakeholders' perception on KEFRI knowledge sharing barriers

The study revealed that 19% of the stakeholders perceived there were barriers in KEFRI knowledge sharing as compared to 52% not at all (Figure 3.15). This showed there were minimal barriers that hinder KEFRI in effective knowledge sharing to stakeholders contrary to information and knowledge sharing among employees.

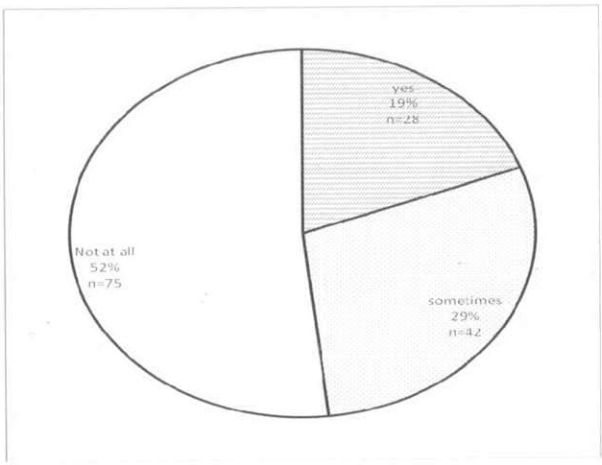

Figure 3.15. Response on barriers that seem to hinder KEFRI in effective knowldege sharing to stakeholders

The key barriers identified were under staffing and resource mobilization, inadequate of information on research findings on the ground, distance to access KEFRI products and services from headquarters and use of technical language in information dissemination of research findings among others (Table 3.48). The implication of these barriers points to the need to enhance channels of accessing and sharing information on KEFRI research findings to stakeholders, use of simple language in information dissemination, providing reading materials that are easy to understand and decentralizing KEFRI services to various counties.

Table 3.48. Barriers hindering KEFRI in effective knowledge sharing to stakeholders

Barriers	Frequency	percentage
Under staffing and resource mobilization	39	29
Internet/website	3	2
Inadequate of information on research findings	25	19
Use of technical language in information dissemination of research findings	14	10
Distance to access KEFRI products and services from headquarters	17	13
Failure of follow-ups with stakeholders on KEFRI products and services	8	6
Failure of up-scaling demo plots to various geographical locations	9	7
KEFRI products and services not well known on the ground	8	6
Inadequate network/collaborate linkages with stakeholders	12	9
Total	**135**	**100**

Various suggestions were provided on how barriers in Table 3.48 can be overcome. These included more awareness meetings on KEFRI knowledge products and services, employ more staff to enhance information access and sharing (extension services) and embrace donor funding projects to increase resources for information access and knowledge sharing of KEFRI products and services among others (Table 3.49).

Table 3.49. Suggestions on how to overcome barriers in effective knowledge sharing to stakeholders

Suggestions	Frequency (n)	Percentage
Employ more staff to enhance information access and sharing (extension services)	24	18
Embrace donor funding to increase resources for information access and knowledge sharing	16	12
More awareness meetings on KEFRI knowledge products and services	38	29
Create a blog in KEFRI website	8	6
Have interpreters and produce easily readable materials	7	5
Have pilot bases for KEFRI knowledge products and services	5	4
Create calendar	5	4
Establish a demo plot to upscale access and information sharing of KEFRI knowledge products and services	9	7
Enhance collaboration and networking with various stakeholders for information and knowledge sharing of KEFRI products and services	6	5
Enhance market of KEFRI products	4	4
Expand KEFRI by opening/establishment more new substations/research centres	8	6
Total	**130**	**100**

Chapter Four:

Conclusions and Recommendations

4.1. Conclusions

The knowledge audit baseline focused on five specific objectives. The first one was to determine the status of information and knowledge access and sharing among employees and research management team in order to strengthen mechanisms of information flow. Overall, senior management and other KEFRI employees agreed and moderately agreed on various aspects of information and knowledge sharing. This indicated there was some level of management of knowledge at KEFRI.

The second objective was to determine the level of staff capacity and competency in Information and Knowledge access and sharing. It was evident from the results that majority of the employees had capacity to generate information and knowledge, were competent in undertaking their tasks and able to share knowledge among colleagues. Nevertheless, they also identified areas where they needed more knowledge and skills in order share and communicate effectively among staff and other KEFRI partners. This provided an overall rating of agree and moderately agree on various aspects measured on staff capacity and competencies, implying that KEFRI needs to manage its knowledge assets in order to create opportunities to share tacit and explicit knowledge among staff, which is very critical in any organization

.

The third objective was to identify and analyze ICT infrastructure for Knowledge creation, capture, sharing and application among employees and stakeholders. The findings pointed out that most of the employees did not have a central repository system to store and retrieve information of interest at work e. In addition, the types of ICT infrastructure were not efficient in knowledge capture and application and their speed of access and storage was fairly slow. Therefore, it can be concluded that ICT infrastructure in KEFRI was not measuring to the expected standard to facilitate knowledge creation, capture and application among employees.

The fourth objective was to evaluate stakeholder awareness and perception of KEFRI Information and Knowledge products and services. In this case, limited number of knowledge products and services were identified by stakeholders leading to overall rating of good. The fifth objective focused on identification and analysis of the effect of barriers and challenges of information and knowledge sharing among employees and stakeholders. The barriers identified had a significant effect on overall information and knowledge sharing among employees and to the stakeholders. Therefore in order to improve on information and knowledge creation, access, sharing and application in KEFRI various recommendations were proposed.

4.2. Recommendations

The overall rating of moderately agree, agree and good in most of the measurement variables of the five objectives indicated that there were gaps that needed to be addressed in order to improve information and knowledge creation and sharing among KEFRI employees and stakeholders. Therefore the following recommendations will be valuable as per the findings in each research objective.

4.2.1. Information and knowledge access and sharing among employees and research management team

To improve/strengthen information and knowledge flow among the employees and research management team, the following recommendations need to be implemented.

i) Creation of database and research protocols to enhance information sharing on research projects among programmes, directorate and scientists. This will avoid duplication of efforts and harness information flow. It can also serve as a monitoring and evaluation tool to track progress of various research projects for information dissemination of research findings. The research database will also be instrumental in providing information on types of donor funded projects, key collaborators and number of completed projects as well as the upcoming and new ones.

ii) Develop mentorship/coaching programme among employees in order to facilitate sharing of tacit knowledge of the most experienced staff as well as sharing of information from trainings. This will enhance cohesion/trust and team building among staff where confidence in each other is raised. This will lead to generation of more information and knowledge a greatest asset for the institute.

iii) Integrate KM practices into the daily work routines by including information and knowledge sharing as performance indicators

iv) Develop an electronic platform for sharing KEFRI strategic plan, ISO 14001:2004, human resource, accounts and supplies operations. This will enable staff to access related information on various documents for their specific needs, significantly reducing paper work of various procedures.

v) Develop robust knowledge management system to facilitate information creation, access and sharing among employees and stakeholders of the institute.

4.2.2. Staff capacity and competency in Information and Knowledge access and sharing

i) Increase employee's participation in developing key institution documents in order to strengthen the skills of information and knowledge creation. This will in turn enable employees understand revenue generating potential of their knowledge assets and develop appropriate strategies on how to market.

ii) Develop KEFRIs corporate CV to market the employee's knowledge and skills so as to enhance information dissemination of KEFRI knowledge products and services among staff and to the general public. This will also enable KEFRI to tap the human resource in revenue generation as a result of their investment in staff training and exposure.

iii) Provide motivation and incentives for contribution and sharing knowledge through recognition and reward programs.

iv) Provide relevant training on the use of ICT applications, internet and the internal e-communication for members of staff in the various job cadres in the institute to enhance productivity and access to relevant information.

v) Create opportunities for informal learning and sharing of knowledge for both technical and non-technical staff to enhance tacit knowledge access and sharing.

vi) Create opportunities for building relationships and connecting both technical and non-technical staff to build trust and inculcate a knowledge-sharing culture.

vii) Provide and enhance formal and informal opportunities for open sharing of knowledge for both technical and non-technical staff

4.2.3. ICT infrastructure for Knowledge creation, capture, sharing and application

Technology is a key component of knowledge management. To facilitate KM in KEFRI there is need to improve ICT tools and services. To achieve this, the following is recommended;

i) Create awareness on various ICT tools and services and their benefits in sharing information and knowledge to the members of staff and the public at large.

ii) Undertake relevant training on the use of use of the internet, basic IT applications like word processors, spreadsheets for all cadre of staff

iii) Improve internet connectivity within and across all KEFRI centers and sub centres to enhance faster information access and sharing within and outside KEFRI
iv) Create and maintain a central repository or portal of critical organizational knowledge for easy storage, access and retrieval on research activities and other key support activities such as personnel, supplies and finance.
v) Provide a link to relevant regional and international knowledge-sharing platforms such as FORNIS and GFIS to raise the profile of KEFRI scientists and their information and knowledge products and services nationally, regionally and internationally.
vi) Incorporate opportunities for e-discussions on the corporate website or intranet to enable staff exchange ideas and share relevant information and knowledge and allow for communication and interaction within KEFRI and with stakeholders.
vii) Provide opportunities for use of social media like Face book, Twitter, Google Talk and Linked In to connect scientists to others and allow exchange of relevant information.

4.2.4. Stakeholder awareness and perception of KEFRI Information and Knowledge products and services

i) Undertake aggressive marketing of KEFRI products and services to enhance visibility and awareness among stakeholders
ii) Develop extension materials in a easy-to-read non-technical language
iii) Pretest KEFRI extension materials before final production to get feedback from farmers and stakeholders to enhance relevance and impact
iv) Use KEFRI website to market KEFRI products and services and link to other relevant databases

4.2.5. Effect of barriers and challenges of information and knowledge sharing among employees and stakeholders

i) Develop a Knowledge Management Strategy that outlines policies, guidelines and mechanisms to enhance information and knowledge sharing among employees and stakeholders
ii) Create opportunities for more interaction and knowledge sharing between KEFRI staff members within and across KEFRI centers to allow exchange of ideas and information and knowledge sharing.
iii) Create opportunities to engage with stakeholders to access and get feedback on relevance and impact of KEFRI products and service

16 FORNESSA Information Service
17 Global Forest Information Service

Appendix 1: Sampling and sample size of employees at KEFRI Headquarters, Centers and Sub Centres

Centre/ Sub Centre	Staff Category	Target Population	Selected sample size	Sampling method	Sampling procedure
KEFRI Headquarters and Seed Centre	Scientists	13	7	Cluster & Simple random sampling	Identify cluster of each scientists e.g training, Information etc and randomly sample clusters and use simple random sampling in selecting respondents
	HR	05	03	Simple random sampling	Randomly select any 3
	Technicians	7	4	Stratification/Purposeful	Purposeful select all 4 technicians
	Technologists	4	3	Stratification/Purposeful	Purposeful select 3 technologists
	Foresters	4	3	Stratification/Purposeful	Purposeful select 3 foresters
	Supplies	1	1	Purposeful	Purposeful select 1 supplies officer
	Accounts	2	2	Purposeful	Purposeful select 2 accounts officer
	Administration staff	9	6	Stratification/simple random & Purposeful	Randomly select any 6 administrative staff
	Subordinate staff	78	20	Stratification & simple random sampling	Randomly select 20 Subordinate staff.
Sub total			**46**		

Centre/ Sub Centre	Staff Category	Target Population	Selected sample size	Sampling method	Sampling procedure
KEFRI Headquarters and Seed Centre	Scientists	13	7	Cluster & Simple random sampling	Identify cluster of each scientists e.g training, Information etc and randomly sample clusters and use simple random sampling in selecting respondents
	HR	05	03	Simple random sampling	Randomly select any 3
	Technicians	7	4	Stratification/Purposeful	Purposeful select all 4 technicians
	Technologists	4	3	Stratification/Purposeful	Purposeful select 3 technologists
	Foresters	4	3	Stratification/Purposeful	Purposeful select 3 foresters
	Supplies	1	1	Purposeful	Purposeful select 1 supplies officer
	Accounts	2	2	Purposeful	Purposeful select 2 accounts officer
	Administration staff	9	6	Stratification/simple random & Purposeful	Randomly select any 6 administrative staff
	Subordinate staff	78	20	Stratification & simple random sampling	Randomly select 20 Subordinate staff.
Sub total			**46**		

Centre/ Sub Centre	Staff Category	Target Population	Selected sample size	Sampling method	Sampling procedure
Muguga Regional Research Centre	Scientists	20	10	Stratification/purposeful	Stratify by gender Purposeful select all 10 scientists. Cut 20 pieces of papers and mark 10 yes and 10 no. Those selected Yes to participate in KM audit
	Technical: Technologists & Technicians	42	15	Stratification/Purposeful	Stratify by designation and gender. Cut 42 pieces of papers and mark 15 yes and 27 no. Those selected Yes to participate in KM audit (NB. No. of Pieces of papers will depend on available staff then). If only 15 are available all to participate
	Finance & administration: Supplies, accounts, ..	24	12	Stratification & Simple random sampling	Stratify according to supplies, accounts, and administration. Allocate sample proportionately to each stratum. Then randomly select a certain no. of respondents from each category. The total should be 12
	Subordinate staff	49	10	Stratification and simple random sampling	Stratify according to gender. Randomly select 10 Subordinate staff.
Sub - total sample			47		

Centre/ Sub Centre	Staff Category	Target Population	Selected sample size	Sampling method	Sampling procedure
Karura Centre	Scientists	10	10	Stratification/ purposeful	Stratify by gender Purposeful select all 10 scientists
	Technical: Technologists & Technicians	6	6	Stratification/ Purposeful	Stratify by designation. Purposeful select all
	Supplies	3	2	Simple random sampling	Randomly select 2. Cut 3 pieces of papers mark 2 Yes and 1 no. Let supplies officers select the pieces of papers. Those selected Yes to participate in the interview
	Accounts	3	2	simple random sampling	Randomly select 2 accounts officers. Cut 3 pieces of papers mark 2 yes and 1 no. Let accounts officers select the pieces of papers. Those selected Yes to participate in the interview
	Administration staff	19	8	Stratification/simple random & Purposeful	Stratify by gender and years of experience. Randomly select 8 across strata.
	Subordinate staff	7	4	Stratification and simple random sampling	Stratify according to gender. Randomly select 4 Subordinate staff. Cut 7 pieces of papers and 4 yes and 3 no. Follow the procedure as in accounts.
	Workshop	5	3	Stratification and simple random sampling	Stratify according to gender. Randomly select 3 workshop staff. Cut 5 pieces of papers and 3 yes and 2 no. Follow the procedure as in accounts.
Sub - total sample			**35**		

	Subordinate staff	78	20	Stratification & simple random sampling	Randomly select 10 Subordinate staff at Londiani and 10 at Turbo. Count the number of SS in each station after KM audit. Cut small piece of papers equal to the number of the SS. Assign 10 pieces of papers Yes and the rest No. Let members pick pieces of papers randomly. Those who pick YES to participate in the survey. NB. Ensure there is gender representation. In either case at least 30% of SS should of either gender. This is fixed on the selected 10.
Sub - total sample			**46**		

Maseno Centre	Scientists	7	7	Stratification/ purposeful	Stratified according work- stations. Purposeful select all 6 scientists at Maseno and one at Kaka mega
	Technical	9	9	Stratification/ Purposeful	Purposeful select all 7 technicians at Maseno and 2 at Kakamega.These include Technicians, technologists & foresters
	Supplies	2	2	Purposeful	Purposeful select 2 supplies officer at Maseno
	Accounts	6	3	Stratification/ simple random sampling/ Purposeful	Randomly select 2 accounts officers & purposeful select Centre accountant
	Administration staff	11	5	Stratification/ simple random & Purposeful	Stratify by gender, years of experience and station. Randomly select 3 based on experience from Maseno, 1 for gender and 1 from Kakamega
	Subordinate staff	38	15	Stratification & simple random sampling	Randomly select 10 Subordinate staff at Maseno and 5 at Turbo. Count the number of SS in each station after KM audit. Cut small piece of papers equal to the number of the SS. Assign 10 pieces of papers Yes at Maseno and 5 at Kakamega. The rest assign NO. Let members pick pieces of papers randomly. Those who pick YES to participate in the survey. NB. Ensure there is gender representation. In either case at least 30% of SS should of either gender. This is fixed on the selected 10 and 5.
Sub - total sample			**41**		

Kitui Centre	Scientists	05	05	Purposeful	Purposeful select all 5 scientists
	Technicians	02	02	Purposeful	Purposeful select all 2
	Technologists	02	02	Purposeful	Purposeful select 2 technologists
	Foresters	02	02	Purposeful	Purposeful select 2 foresters
	Supplies	1	1	Purposeful	Purposeful select 1 supplies officer
	Accounts	1	1	Purposeful	Purposeful select 1 accounts officer
	Administration staff	15	8	Stratification/ simple random & Purposeful	Stratify according to Job categories e.g. Clerks, secretaries, Transport etc. Randomly select 8 respondents across the categories. Take gender into consideration
	Subordinate staff	30	12	Stratification & simple random sampling	Stratify according to gender, Randomly select 12. Count the number of SS. Cut small piece of papers equal to the number of the SS. Assign 12 pieces of papers Yes and the rest No. Let members pick pieces of papers randomly. Those who pick YES to participate in the survey.
Sub - total sample			**33**		

Kibwezi Sub Centre	Scientists	1	1	Purposeful	Purposeful interview scientist
	Technologist /Technicians	2	2	Purposeful	Purposeful select 2 technicians/technologist
	Foresters	3	3	Purposeful	Purposeful select 3 foresters
	Seed collectors/ transport/ Maintenance/ security	08	05	Stratification and simple random sampling	Stratify according to job category and randomly select 5 a cross the clusters
	Supplies	0	0	Purposeful	Purposeful select 1 supplies officer
	Accounts	1	1	Purposeful	Purposeful select 1 accounts officer
	Administration	2	2	Purposeful	Purposeful select 2
	Subordinate staff	14	05	Stratification & simple random sampling	Stratify by gender. Use SRS
Sub - total sample			**18**		

Gede	Scientists	8	6	Purposeful	Purposeful select all 6 scientists at Gede
Centre	Technicians/Foresters/ Technologies	5	5	Stratification & Purposeful	Stratify according to job category, then purposeful select all 5 at the centre
	Administrative staff: Supplies, Accounts, administration	8	6	Stratification & Purposeful	Stratify according to job category and Purposeful/randomly select at least1 from each job category
	Subordinate staff	29	13	Stratification & simple random sampling	Stratify according to gender. Randomly select 13 Subordinate staff. Count the number of SS in each station after KM audit. Cut small piece of papers equal to the number of the SS. Assign 13 pieces of papers Yes and the rest No. Let members pick pieces of papers randomly. Those who pick YES to participate in the survey. NB. Ensure there is gender representation. In either case atleast 30% of SS should of either gender. This is fixed on the selected 13.
Sub - total			**30**		

KNOWLEDGE MANAGEMENT IN KEFRI

Research Management team

Questionnaire no: _____ **Date:** _____ **Enumerator:** _____

INTRODUCTION

Knowledge Management is the ability of an organization to **CREATE**, **SHARE** and **USE** the collective knowledge of its personnel, products, services and processes. Management of knowledge increases productivity, enhances organizational performance, reduces activities that "reinvent the wheel" and benefits staff, the organization and its clients. To be able to achieve this, there is need to develop a knowledge management strategy.

The Kenya Forestry Research Institute (KEFRI), in recognition of the importance of managing knowledge; has embarked on a process of developing and implementing a **Knowledge Management Strategy**. The first step in developing this strategy is to undertake a baseline survey to determine the status of existing data, information and knowledge within KEFRI and collect views from stakeholders.

Your response to this questionnaire will assist in collecting the necessary data that will contribute to development and implementation of a Knowledge Management Strategy for KEFRI, for the benefit of staff, the Institute and our stakeholders.

SECTION I: RESEARCH, FINANCE AND ADMINISTRATION ACTIVITIES

1. Please indicate the your level of agreement with the following statements; (Tick as appropriate)

*SA=strongly agree; A=Agree; MA=Moderately agree; D=Disagree; SD=Strongly disagree

No	Statement	SA	A	MA	D	SD
1.	I am aware of the total number of projects in all programmes					
2.	I am aware of the current status of each project in all programmes					
3.	I am updated on the progress of the projects undertaken in various programmes periodically					

No	Statement	SA	A	MA	D	SD
4.	I am aware of the project development history of all programmes					
5.	I am updated on the current trends of funding in each project					
6.	I am aware of the collaborators of each project in all programmes					
7.	I am aware of the research concepts developed in all programmes					
8.	I am aware of the approved projects in all the programmes					
9.	I am updated on the implementation problems of projects in each programme					
10.	I am updated on the accomplishments of the projects undertaken in each year					
11.	There are adequate mechanisms of sharing information in all programmes across research centres					
12.	I am updated on all donor-funded projects					
13.	I am updated on the objectives and outputs of each donor-funded project					
14.	The total amount of donor funds approved are communicated to all programmes and centres					
15.	The total amount of GoK and internally generated funds are communicated to all departments, programmes, divisions and centres					
16.	I am updated on the implementation schedule of all projects					
17.	I am updated on the status of upcoming projects from collaborators and development partners					
18.	I have a specific location for storing information on KEFRI projects					
19.	I have information on all MoUs and MoA signed by KEFRI and other development partners, institutions and organizations					
20.	There is a system of tracking progress of MoUs and MoAs					
21.	I am aware of the current KEFRI Strategic Plan					

No	Statement	SA	A	MA	D	SD
22.	I am aware of KEFRIs budgeting procedures					
23.	I am aware of KEFRIs budget components					
24.	I am aware of accounts manual					
25.	I am aware of accounts procedures					
26.	I am aware of supplies manual					
27.	I am aware of supplies procedures					
28.	I am aware of the KEFRI Staff Schemes of Service					
29.	I am aware of the human resource manual					
30.	I am aware of human resource procedures					
31.	I am aware of ISO 14001: 2004 procedures					

SECTION II: KNOWLEDGE AND INFORMATION SHARING

2. Please rate your level of agreement of the following statements. Tick as appropriate.

*SA= strongly agree; A= Agree; MA= Moderately agree; D= Disagree; SD= Strongly disagree

	Statement	SA	A	MA	D	SD
1.	I find sufficient knowledge at KEFRI to do my tasks					
2.	I always find the specific knowledge I need at my work place					
3.	The specific knowledge that I need resides with experts rather than in a specific location					
4.	I am satisfied with available knowledge with my core team[18]					
5.	My core team members are very supportive of knowledge generation					
6.	My designated department/programme/divison/centre					

[18] Core team refers to the people you work with on a regular basis.

	Statement	SA	A	MA	D	SD
	facilitates knowledge storage and retrieval					
7.	My designated department/programme/division/centre encourages and facilitates knowledge transfer/sharing					
8.	My designated department/programme/division/centre facilitates me to accomplish tasks as scheduled					
9.	There is a culture of openness and trust at my designated department/programme/division/centre					
10.	KEFRI understands the revenue-generating potential of its knowledge assets (e.g. publications, consultancies, technologies, training) and develops strategies for marketing and selling them					
11.	KEFRI evaluates staff to support improvement of their core competencies					
12.	KEFRI employees are rewarded for their contributions to the development of organizational knowledge					

3. How often do you share information with other KEFRI staff in a formal way? (Please tick one as appropriate)

   1. Very often 2. Often 3. Not at all

4. What information communication systems do you use in information sharing at KEFRI? (Tick as appropriate)

No	Information communication systems	Tick as appropriate
1.	Databases	
2.	Intranet (Internal organizational network)	
3.	Internet	
4.	E-mail	
5.	Instant chat e.g. Yahoo messenger	
6.	Networking using social sites like Face book and Twitter	
7.	Meetings (internal/external meetings)	

No	Information communication systems	Tick as appropriate
8.	Conferences and workshops	
9.	Community functions (church, chief baraza's)	
10.	Open/field days and ASK shows	
11.	Print and electronic media	
12.	Monitoring and evaluation of projects/activities	
13.	Decision support systems[19]	
14.	Informal discussions	
15.	Any other specify:	

5. List type of information you share in formal way and indicate how is it communicated?

_____	Type of information	**How it is communicated:** ***1****. Internet* ***2****. Letter* ***3****. Memos* ***4****. Phone call* ***5****. Mobile call* ***6****. Databases* ***7****. others, specify*
1.		
2.		
3.		
4.		
5.		

[19] A **decision support system** (**DSS**) is a computer-based information system that supports business or organizational decision-making activities

6. Please, rate the extent to which you agree with following statements

*SA= strongly agree; A= Agree; MA= Moderately agree; D= Disagree; SD= Strongly disagree

No	Statement	SA	A	MA	D	SD
1.	Training and development opportunities are explicitly linked to the strategic direction of KEFRI.					
2.	Employees know the career development philosophy of KEFRI and what their role is in the development process.					
3.	KEFRI's position towards it's employees is credible as reflected in;					
	• Career Development					
	• Core values					
	• Institute-wide goals					
4.	Employees know the key skills they need for implementation of KEFRIs Strategic Plan.					
5.	The Strategic plan of KEFRI is consistently communicated to all levels of employees through the management chain, special communications and training and development activities.					
6.	Employees are actively encouraged to share their knowledge with colleagues at all levels in the organization					

7. Please rate the extent at which you agree how Knowledge is passed among KEFRI staff

*SA= strongly agree; A= Agree; MA= Moderately agree; D= Disagree; SD= Strongly disagree

No	Statement	SA	A	MA	D	SD
1.	Coaching					
2.	Mentoring					
3.	Informal interaction					
4.	Formal training					
5.	Formal Meetings					

No	Statement	SA	A	MA	D	SD
6.	Colloquia					
7.	Seminars					
8.	Workshops					
9.	Any other, please specify					

SECTION III: STAFF COMPETENCY AND KNOWLEDGE

8. List the knowledge and skills needed to effectively and efficiently perform the duties in your current position and indicate proficiency level.

No	Competency	Proficiency level: *1. Beginner 2. Advanced 3.Expert*
1.		
2.		
3.		
4.		
5.		

9. How did you acquire most skills/expertise that you have been using in your job? Tick as appropriate

No.	How acquired skills/expertise	Tick as appropriate
1.	Through KEFRI	
2.	Through self learning	
3.	Through formal training	
4.	At my last job	
5.	Through participation in workshops and seminars	
6.	Any other, specify:	

10. Have you received any short training in the last one-year? ***1. Yes*** ***2. No***

11. Have you received any long-term training in the last 5 years? ***1. Yes*** ***2. No***

12. If **YES for Question 10 and/or 11,** have you shared skills and knowledge gained in the short and long-term training?

1. Yes **2. Somehow** **3. No**

13. If **YES** or **SOMEHOW in Question 12**, list the skills and knowledge gained and method of sharing

No	Skills and knowledge gained	Methods of sharing
1.		
2.		
3.		
4.		

14. Please rate your level of agreement with following statements

*SA= strongly agree; A= Agree; MA= Moderately agree; D= Disagree; SD= Strongly disagree

No	Statement	SA	A	MA	D	SD
1.	In my work, I find it easy to apply the training I have received					
2.	There are opportunities available for me to work with a mentor					
3.	There are opportunities for me to cross-train and learn new skills					
4.	I have the opportunity for career development within KEFRI					
5.	I am encouraged to take the initiative in determining my own career development					

15. Knowledge I acquire in my present job belongs first and foremost to (Please tick one)

No.	Knowledge acquired belongs to	Please tick one
1.	Me alone	
2.	KEFRI alone	
3.	Depends on how much I had put in to it	
4.	Both myself and KEFRI	
5.	Any other specify	

SECTION IV: KNOWLDEGE MANAGEMENT INFRASTRUCTURE

16. Where is the information that you need to do your work located or stored? Tick as appropriate

No	Where information is located or stored	Tick as appropriate
1.	In paper based documents	
2.	With colleague(s)	
3.	In a specific location, specify	

No	Where information is located or stored	Tick as appropriate
	i.	
	ii.	
	iii.	
4.	On my personal laptop	
5.	In my office/desk	
6.	On my workstation desktop	
7.	Any other specify:	

17. Do you have a specific location in your workplace for accessing KEFRI information?

    1. Yes 2. No. 3. Somehow

18. If **YES** and **SOMEHOW** in **Question 17**, specify;

    Yes:.....
    .....
    .....

    .....

    .....

    Somehow:.....
    .....
    .....

    .....
    .....

19. Please rate the speed at which you access information at KEFRI using various modes of storage.

No	Modes of storage	**Speed:** 1. Slow 2. Moderate 3. Fast
1.	In paper based documents (files, reports, technical notes, books in the library etc)	
2.	With colleague(s)	
3.	In a specific location, specify	
	3.1	
	3.2	
	3.3	
	3.4	
4.	On my personal laptop	
5.	On my workstation desktop	
6.	Any other specify:	

20. Explain why you consider computers and internet important in improving the way you share knowledge, within your teams at KEFRI?

.....

.....

.....

.....

21. Do you have access to the following information and communication technology (ICT) tools? (Tick as appropriate)

1. Computer (**Yes/No**) 2. Internet access (**Yes/No**) 3. E mail account (**Yes/No**)

22. Please specify your frequency of use of the following ICT tools and how easily you are able to use them

No	ICT tools	Frequency: 1. Frequently 2. Sometimes 3. Rarely 4. Not at all	How easy: *1. Very easy; 2. Easy; 3. not easy*
1.	Basic computers (Ms office package):		
	Ms Word		
	Ms Excel		
	Ms Access		
	Ms PowerPoint		
	Ms Publisher		
2.	KEFRI Email account		
	Internet based Email account		
3.	Basic internet browsing		
4.	Social Networking sites e.g. Face book, Twitter		
5.	Online Databases (specify)		
	Offline Databases (specify)		
6.	e-discussion:		
	email based		
	web based		
7.	Any other specify:		

23. Do you have documented procedures for your work? Tick as appropriate 1. Yes 2. No

24. If **YES for Question 23**, how often do use them?

1. Constantly 2. Very often 3. Quite often 4. not often

SECTION V: BARRIERS TO KNOWLEDGE FLOW AT KEFRI

25. What are the barriers to storing information received and generated?

	Barriers	**Tick as appropriate**
1.	Being too busy	
2.	Access to current technology	
3.	Organization policy	
4.	Poor information systems/processes	
5.	Inadequate capacity (human, physical and financial)	
6.	Any other specify:	

26. How can such barriers be addressed

_____

_____

_____

_____

_____

27. What are the challenges in sharing information in KEFRI

No.	Challenges		Tick as appropriate	Mitigation measure
1.	Don't perceive there is an urgent need to share			
2.	Lack of an open-minded sharing environment			
3.	Lack of trust in each other			
4.	Lack of confidence in other people's knowledge			
5.	Lack of perceived benefits			
6.	No proper organization guidelines on sharing information			
7.	Bureaucratic procedures involved in information sharing			
8.	Task requires access of information from:			
	Other	department		
		division		
		programme		
		centre		
	Within my:	Department/ division/ programme/centre (Please specify one) _____		
9.	Poor IT platform to share information			
10.	Don't know about other employees' knowledge			
11.	Don't know about other employees' knowledge needs			
12.	Capacity in ICT			
13.	Any other specify:			

28. Please indicate how such challenges should be mitigated for effective and efficient information sharing

_____

_____

_____

_____

_____

_____

29. What are the challenges of sharing ir formation among staff across all regional research centres, centres and headquarters?

_____

_____

_____

_____

_____

SECTION VI: BACKGROUND INFORMATION OF RESPONDENT

No	Respondent details	Response
	Department: (Tick one)	1. **Research and Development** 2. **Finance and Administration**
1.	Work Station/Centre/Programme	
2.	Present designation (optional)	
3.	How many years have been in this position	
4.	Area of specialization	
5.	Year joined KEFRI	
6.	Highest academic qualification	
7.	Gender (*male/female*)	

Thank you for taking time with us

Appendix 3: KEFRI Employees Questionnaire

KNOWLEDGE MANAGEMENT IN KEFRI

KEFRI EMPLOYEES

Questionnaire no: _____ **Date:** _____ **Enumerator:** _____

INTRODUCTION

Knowledge Management is the ability of an organization to **CREATE**, **SHARE** and **USE** the collective knowledge of its personnel, products, services and processes. Management of knowledge increases productivity, enhances organizational performance, reduces activities that "reinvent the wheel" and benefits staff, the organization and its clients. To be able to achieve this, there is need to develop a knowledge management strategy.

The Kenya Forestry Research Institute (KEFRI), in recognition of the importance of managing knowledge; has embarked on a process of developing and implementing a **Knowledge Management Strategy**. The first step in developing this strategy is to undertake a baseline survey to determine the status of existing data, information and knowledge within KEFRI and collect views from stakeholders.

Your response to this questionnaire will assist in collecting the necessary data that will contribute to development and implementation of a Knowledge Management Strategy for KEFRI, for the benefit of staff, the Institute and our stakeholders.

SECTION I: KNOWLEDGE AND INFORMATION SHARING

1. Please rate your level of agreement of the following statements. Tick as appropriate.

*SA= strongly agree; A= Agree; MA= Moderately agree; D= Disagree; SD= Strongly disagree

	Statement	SA	A	MA	D	SD
1.	I find sufficient knowledge at KEFRI to do my tasks					
2.	I always find the specific knowledge I need at my work place					

	Statement	SA	A	MA	D	SD
3.	The specific knowledge that I need resides with experts rather than in a specific location[20]					
4.	I am satisfied with available knowledge with my core team[21]					
5.	My core team members are very supportive of knowledge creation					
6.	My designated department/programme/division/centre/sub centre facilitates knowledge storage and retrieval					
7.	My designated department/programme/division/centre/sub centre encourages and facilitates knowledge transfer/sharing					
8.	My designated department/programme/division/centre/sub centre enables me to accomplish tasks more quickly					
9.	There is a culture of openness and trust at my designated department/programme/divison/centre/sub centre					
10.	KEFRI understands the revenue-generating potential of its knowledge assets and develops strategies for marketing and selling them					
11.	KEFRI uses learning to support existing core competencies of individual staff					
12.	KEFRI employees are evaluated and compensated for their contributions to the development of organizational knowledge					

2. How often do you share information with other KEFRI staff in a formal way? (Please tick one as appropriate)

   1. Very often 2. Often 3. Not at all

3. What information communication systems do you use in information sharing at KEFRI? (Tick as appropriate)

No	Information communication systems	Tick as appropriate
16.	Databases	

[2020] Specific location may refer to library, office, registry etc

[21] Core team refers to the people you work with on a regular basis.

No	Information communication systems	Tick as appropriate
17.	Intranet (Internal organizational network)	
18.	Internet	
19.	E-mail	
20.	Instant chat e.g. Yahoo messenger	
21.	Networking using social sites like Face book and Twitter	
22.	Meetings (internal/external meetings)	
23.	Conferences and workshops	
24.	Community functions (church, chief baraza's)	
25.	Open/field days and ASK shows	
26.	Print and electronic media	
27.	Monitoring and evaluation of projects/activities	
28.	Decision support systems[22]	
29.	None of the above	
30.	Any other specify:	

4. List type of information you share in formal way and indicate how is it communicated?

	Type of information	**How it is communicated:** ***1****. Internet* ***2****. Letter* ***3****. Memos* ***4****. Phone call* ***5****. Mobile call* ***6****. Databases* ***7****. others, specify*
1.		
2.		

[22] A **decision support system** (**DSS**) is a computer-based information system that supports business or organizational decision-making activities

3.		
4.		
5.		

5. Please, rate the extent to which you agree with following statements

*SA= strongly agree; A= Agree; MA= Moderately agree; D= Disagree; SD= Strongly disagree

No	Statement	SA	A	MA	D	SD
1	Training and development opportunities are explicitly linked to the strategic direction of KEFRI.					
2	Employees know the career development philosophy of KEFRI and what their role is in the development process.					
3	KEFRI's position towards it's employees is credible as reflected in;					
	• Career Development					
	• Core values					
	• Institute-wide goals					
4	Employees know the key skills that KEFRI needs in the next five years.					
5	The Strategic plan of KEFRI is consistently communicated to all levels of employees					
6	Employees are actively encouraged to share their knowledge with colleagues at all levels in the organization					

6. Please rate the extent at which you agree how Knowledge is passed among KEFRI staff

*SA= strongly agree; A= Agree; MA= Moderately agree; D= Disagree; SD= Strongly disagree

No	Statement	SA	A	MA	D	SD

No	Statement	SA	A	MA	D	SD
1.	Coaching					
2.	Mentoring					
3.	Informal interaction					
4.	Formal training					
5.	Formal Meetings					
6.	Colloquia					
7.	Seminars					
8.	Workshops					
9.	Any other, please specify					

SECTION II: STAFF COMPETENCY AND KNOWLEDGE

7. List the knowledge and skills needed to effectively and efficiently perform the duties in your current position and indicate your proficiency level.

No	Competency	Proficiency level: *1. Beginner 2. Advanced 3.Expert*
6.		
7.		
8.		
9.		

8. How did you acquire most skills/expertise that you have been using in your job? Tick as appropriate

No.	How acquired skills/expertise	Tick as appropriate
7.	Through KEFRI	

8.	Through self learning	
9.	Through formal training	
10.	At my last job	
11.	Through participation in workshops and seminars	
12.	Any other, specify:	

9. Have you received any short training in relation to your current job in the last one-year?

1. Yes ***2. No***

10. Have you received any long-term training in relation to your current job in the recent past?

1. Yes ***2. No***

11. If yes have you shared skills and knowledge gained in the short and long-term training?

1. Yes **2. Somehow** **3. No**

12. If yes or somehow, list the skills and knowledge gained and method of sharing

No	Skills and knowledge gained	Methods of sharing
5.		
6.		
7.		
8.		

13. Please rate your level of agreement with following statements

*SA= strongly agree; A= Agree; MA= Moderately agree; D= Disagree; SD= Strongly disagree

No	Statement	SA	A	MA	D	SD
1.	In my work, I find it easy to apply the training I have received					
2.	There are opportunities available for me to work with a mentor in effective delivery of my duties					
3.	There are opportunities for me to cross-train and learn new skills in relation to my current duties					
4.	I have the opportunity for career development within KEFRI					
5.	I am encouraged to take the initiative in determining my own career development					

14. Knowledge I acquire in my present job belongs first and foremost to (Please tick one)

No.	Knowledge acquired belongs to	Please tick one
1.	Me alone	
2.	KEFRI alone	
3.	Depends on how much I had put in to it	
4.	Both myself and KEFRI	
5.	Any other specify	

SECTION III: KNOWLDEGE MANAGEMENT INFRASTRUCTURE

15. Where is the information that you need to do your work located or stored? Tick as appropriate

No	Where information is located or stored	Tick as appropriate
1.	In paper-based documents	
2.	In staff members heads	
3.	In a specific location, specify	

	i.	
	ii.	
	iii.	
4.	On my personal laptop	
5.	In my office/desk	
6.	On my workstation desktop	
7.	Any other specify:	

31. Do you have a specific location in your workplace for accessing KEFRI information?

    2. Yes 2. No. 3. Somehow

32. If Yes and somehow, specify

    Yes:.....
    .....
    .....
    .....

    Somehow:.....
    .....
    .....
    .....

33. Please rate the speed at which you access information at KEFRI using various modes of storage.

No	Modes of storage	**Speed:** 1. Slow 2. Moderate 3. Fast
1.	In paper-based documents (files, reports, technical notes, books in the library etc)	
2.	With my colleague(s)	
3.	On my personal laptop	
4.	On my workstation desktop	
5.	In a specific location, specify	

No	Modes of storage	**Speed:** 1. Slow 2. Moderate 3. Fast
	5.1	
	5.2	
	5.3	
	5.4	

34. Do you have access to the following information and communication technology (ICT) tools? (Tick as appropriate)

2. Computer (Yes/No) 2. Internet access (Yes/No) 3. E mail account (Yes/No)

35. Please specify your frequency of use of the following ICT tools and how easily you are able to use them

No	ICT tools	**Frequency:** 1. Frequently 2. Sometimes 3. Rarely	**How easy:** *1. Very easy; 2. Easy; 3. not easy*
8.	Computers Basics (Ms office package)		
	Ms Word		
	Ms Excel		
	Ms Access		
	Ms PowerPoint		
	Ms Publisher		
9.	KEFRI Email account		
	Internet based Email account		
10.	Basic internet browsing		
11.	Social Networking sites e.g. Face book, Twitter		

No	ICT tools	Frequency: 1. Frequently 2. Sometimes 3. Rarely	How easy: *1. Very easy; 2. Easy; 3. not easy*
12.	Online Databases (specify)		
	Offline Databases (specify)		
13.	e-discussion; email based		
	e-discussion web based		
14.	Any other specify:		

36. How important do you consider **computers** in improving the way you share knowledge, within your teams at KEFRI?

    1.Very important 2. Important 3. Not important

37. How important do you consider **internet** in improving the way you share knowledge, within your teams at KEFRI?

    1.Very important 2. Important 3. Not important

38. Do you have documented procedures for your work? Tick as appropriate 1. Yes 2 No

39. If **yes** how often do you use them?

    2. Very often 2. Often 3. Not at all

SECTION IV: BARRIERS TO KNOWLEDGE FLOW AT KEFRI

40. What are the barriers to access and storage of information generated at KEFRI?

	Barriers	**Tick as appropriate**
1.	Being too busy	
2.	Access to current technology	
3.	Organization policy	
4.	Poor information systems/processes	
5.	Inadequate capacity (human, physical and financial)	
6.	Any other specify:	

41. What are barriers to information retrieval at KEFRI?

_____

_____

_____

_____

_____

_____

42. What are the challenges in sharing information in KEFRI? Tick and indicate mitigation measures for effective and efficient information sharing

No.	**Challenges**	**Tick as appropriate**	**Mitigation measure**
1.	Don't perceive there is an urgent need to share		
2.	Lack of an open-minded sharing environment		
3.	Lack of trust in each other		
4.	Lack of confidence in other people's knowledge		

No.	Challenges		Tick as appropriate	Mitigation measure
5.	Lack of perceived benefits			
6.	No proper organization guidelines on sharing information			
7.	Bureaucratic procedures involved in information sharing			
8.	Task requires access of information from:			
	Other	department		
		division		
		programme		
		centre		
	Within my:	Department/ division/ programme/centre (Please specify one) _____		
9.	Poor IT platform to share information			
10.	Don't know about other employees' knowledge			
11.	Don't know about other employees' knowledge needs			
12.	Capacity in ICT			
13.	Any other specify:			

28. What are the challenges of sharing information among staff across all regional research centres, sub centres and headquarters?

_____

_____

_____

_____

SECTION V: BACKGROUND INFORMATION OF RESPONDENT

No	Respondent details	Response
	Department: (Tick one)	**3. Research and Development** **4. Finance and Administration**
1.	Present designation (optional)	
2.	Year joined KEFRI	
3.	Highest academic qualification	
4.	Gender (*male/female*)	

Thank you for taking time with us

KNOWLEDGE MANAGEMENT IN KEFRI

KEFRI STAKEHOLDERS

Questionnaire no: _____ **Date:** _____ **Enumerator:** _____

INTRODUCTION

Knowledge Management is the ability of an organization to **CREATE**, **SHARE** and **USE** the collective knowledge of its personnel, products, services and processes. Management of knowledge increases productivity, enhances organizational performance, reduces activities that "reinvent the wheel" and benefits staff, the organization and its clients. To be able to achieve this, there is need to develop a knowledge management strategy.

The Kenya Forestry Research Institute (KEFRI), in recognition of the importance of managing knowledge; has embarked on a process of developing and implementing a **Knowledge Management Strategy**. The first step in developing this strategy is to undertake a baseline survey to determine the status of existing data, information and knowledge within KEFRI and collect views from stakeholders.

Your response to this questionnaire will assist in collecting the necessary data that will contribute to development and implementation of a Knowledge Management Strategy for KEFRI, for the benefit of staff, the Institute and our stakeholders.

SECTION I: PERCEPTION & AWARENESS OF KEFRI PRODUCTS AND SERVICES

1. For how many years have you collaborated/interacted with KEFRI?_____

2. How often do you interact with KEFRI staff? (Please tick one)

1. Very often *2. Often* *3. Rarely* *4. Not at all*

3. Since you started interacting with KEFRI, what are the key services and products you have sought from the institute? (Please indicate)

No	Service category	Type of service/product(s) sought
1.	Research	
2.	Training	
3.	Purchase Products	
4.	Procure Services	
5.	Consultancy	
6.	Information	
7.	Advisory	
8.	Administrative	
9.	Any other, specify	

4. Please list products and services provided by KEFRI that you are aware of?

	Products	Services
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		

5. What is your general perception about KEFRI products and services?

Products

1. Very good 2. Good 3. Poor 4. Not aware

Services

1. Very good 2. Good 3. Poor 4. Not aware

6. What are the other services and products that you feel KEFRI needs to provide to the public that are not currently offered

	Products	Services
1.		
2.		

	Products	Services
3.		
4.		
5.		

7. Are you aware of any organizations/organized groups/individuals that require KEFRI products and services but are not able to get them from KEFRI? *Tick as appropriate*

	Name of Organization/Group/Individual	Yes	Sometimes	No	Type of products and service required
1.					
2.					
3.					
4.					
5.					

8. If **YES** or **Sometimes** in **(Q7)** what were the reasons/problems/issues

_____

_____

_____

SECTION III: INFORMATION DISSEMINATION

9. Please rate your level of agreement on how KEFRI effectively enhances your knowledge through the following dissemination pathways. Tick as appropriate

SA: Strongly agree; A: agree; MA: Moderately agree; D: Disagree; SD: Strongly disagree; NA: Not aware

	Dissemination outlets	SA	A	MA	D	SD	NA
1.	KEFRI publications are easily readable, informative and of high quality						
2.	Open days are well organized and convey KEFRI research activities						
3.	Field days are well organized and convey KEFRI research activities						
4.	Talk shows in vernacular are enlightening on forestry and related activities						
5.	Talk shows on national media are enlightening on forestry and related activities						
6.	KEFRI website well updated and informative						
7.	Technical staff effectively pass information on what KEFRI does						
8.	KEFRI scientific bi-annual conferences effectively provide relevant information on research development and setting of research agenda						
9.	Presentations during Centre Research Advisory Committees enhance awareness on KEFRI Research activities and interaction with stakeholders						

10. Please suggest other ways that might be helpful for KEFRI in encouraging knowledge sharing and transfer to stakeholders?

SECTION IV: KNOWLDEGE AND COMPETENCE LEVELS OF KEFRI STAFF

11. Please rate the level of knowledge and competence of KEFRI staff in discharging their duties on areas you have sought assistance. *Tick as appropriate*

4: Knowledgeable & competent; 3: Fairly knowledgeable & competent; 2: Not knowledgeable & competent; 1: Not Interacted

No	KEFRI Staff	4	3	2	1
1.	Directorate (Director, Deputy Directors)				
2.	Senior management (Assistant Directors / National Program Coordinators ,Centre Directors)				
3.	Researchers (scientists)				
4	Dissemination officers				
5	Trainers				
6.	Technicians and Technologists				
7.	Foresters				
8.	Procurement/Supplies staff				
9.	Support staff				
10	Accounts				
11	Administration				
12.	Security staff				
13.	Any other, specify				

12. Please provide the reasons on your rating in **Q11** above.

13. Are there barriers that seem to hinder KEFRI in effective knowledge sharing to stakeholders? (Tick as appropriate)

1. Yes *2. Sometimes* *3. Not at all.*

14. If yes/sometimes in **Q13**, Please list the barriers and suggest ways of overcoming them.

	Barrier	**How to overcome**
1.		
2.		
3.		
4.		
5.		

SECTION V: BACKGROUND INFORMATION

Stakeholder Type(*)	Name of stakeholder	Name of Respondent	Designation of Respondent	Contact Details of Respondent (Telephone, Email)

* **Stakeholder Type**

1: Farmer

2: Research Organizations

3: GOK Department

4: Learning Institution

5: Media Organizations

6: Donor organizations

7: Business firms

8: Entrepreneurs

9: CBO

10: NGO

11: Other (Specify)_____

THANK YOU

Appendix 5: KEFRI Knowledge Audit Team

The KEFRI Knowledge Audit Team comprised of the KEFRI Knowledge Management Steering Committee and KEFRI Dissemination Officers as shown in the list below;

KEFRI Knowledge Management Steering Committee

1. Sheila Shefo Mbiru
2. Dr. Ebby Chagala-Odera
3. Dr. Vincent Oeba
4. Paul Tuwei
5. Dorothy Ochieng
6. Francis Ochung
7. Gillian Mutua

Dissemination Officers

1. Damaris Munyao
2. David Muchiri
3. Florence Mwanziu
4. Samson Mogire
5. Joyce Okumu
6. Samuel Wakori
7. George Etindi

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